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Richard Gabriel has been working with Lisp for more than 35 years.

A Lifetime Writing in Lisp

Is old language good for teaching threading?

BY ALEX HANDY

Although bobby socks and Edsels are safely in the past, a classic programming language may be making a comeback.

In 1972, Richard Gabriel found himself tasked with the job of making a video camera move according to programmed actions. The project was created inside MIT's AI Lab, where Gabriel was then a student, and in order to accomplish this task, he was forced to learn Lisp.

A Fortran programmer prior to this, Gabriel found himself learning to program in a language that would come to be a part of his life for the next 35 years and beyond. Along the way, he discovered that Lisp offered numerous benefits to students and first-time programmers—benefits that are still not available anywhere else,

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Four New Eclipse Projects Kicked Off in August

Albireo project seeks to calm turbulent SWT/Swing interactions

BY ALEX HANDY

Project Albireo, which aims to resolve graphical issues that arise from combining Swing and SWT in the same Java applications, is among four new projects approved by the Eclipse Foundation that the group said will expand the capabilities of the platform.

The projects, approved in mid-August, include a framework for building new language support into Eclipse, as well as an effort to build an open-source financial management and information platform.

Created by employees of Genuitec, ILOG, Instantiations and SAS Institute, the Albireo project seeks to expand on the bridge built in Eclipse 3.0 between the Standard Widget Toolkit (SWT) and the Abstract Window Toolkit, upon which Swing is based. Considering that these four companies specialize in business rules management and integrations as well as the Eclipse IDE itself, development issues around SWT and Swing obviously touch many disparate users. Indeed, both

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FSF: Microsoft Bound by GPLv3, No Exemptions

BY DAVID WORTHINGTON

Microsoft and the Free Software Foundation appear to be marshaling their troops and heading for the legal trenches; once again, the fight is over GNU General Public License version 3 (GPLv3).

In July, Microsoft flatly stated that it was not bound by GPLv3, drawing a sharp rebuke from the FSF, which insisted on Aug. 28 that Microsoft could not declare itself exempt of the requirements of GPLv3. The foundation's statement that day contained an ominous warning.

"We will ensure—and, to the extent of our resources, assist other GPLv3 licensors in ensuring—that Microsoft respects our copyrights and complies with our licenses," the FSF statement read. When asked to elaborate on the organization's intentions, FSF licensing compliance engineer Brett Smith said that the foundation did not believe that its statement needed any clarification, and that it did not have anything to add to it.

The Microsoft/Novell agreement is the spark that lit the fuse of the conflict. The FSF interprets it as an attempt by Microsoft to leverage its patent portfolio to divide and conquer the free software community. Microsoft promised not to charge Novell customers using SUSE Linux with patent infringement, and the FSF believes it did so to frighten users to pay a "favored" distributor to avoid the risk of being sued for patent infringement—a scenario the FSF considers to be the de facto proprietization of free software.

Microsoft struck similar agreements with Linspire and Xandros in June. The first establishes patent covenants for Linspire customers, and provides rights to Microsoft patents that may have been infringed upon by Linspire technologies.

Under the terms of the latter agreement, Microsoft will make

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Behind Vail, Serena Steps Into SaaS

BY JEFF FEINMAN

As SaaS companies such as Google, NetSuite and Salesforce.com experience continued growth, Serena Software is getting set to offer an on-demand platform of its own.

Vail, Serena's new business mashup tool and software-as-a-service (SaaS) offering, will bring the benefits of SOA to busi-

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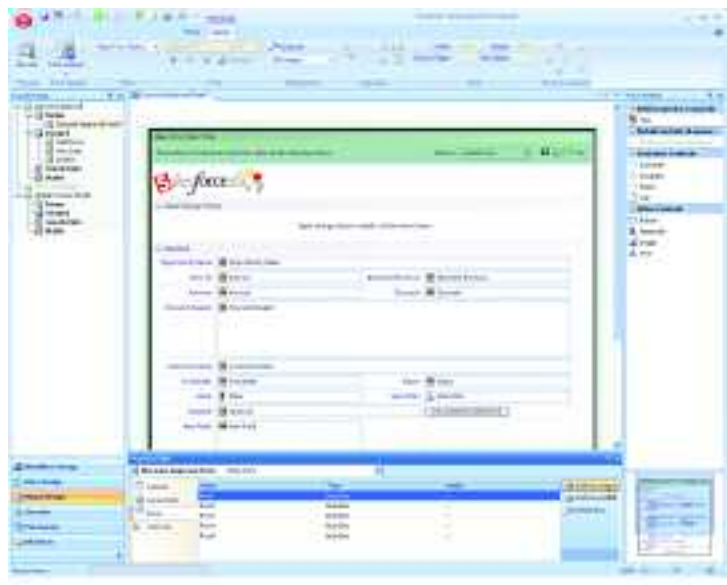

The Serena Mashup Composer is a free tool that lets end users construct their own mashups without restrictions.

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Sun Rises on Emerging Markets

Beyond U.S., Europe: Schwartz focuses on Brazil, Russia, India, China

BY ALEX HANDY

MENLO PARK, CALIF. — As America's economy continues to sputter, catapult and dive, Sun Microsystems is looking overseas for its future. CEO Jonathan Schwartz offered insight into just how he hopes his company will take advantage of opportunities in the so-called "BRIC nations"—Brazil, Russia, India and China—in an Aug. 29 address at the Emerging Markets Summit organized by Sun.

SD Times Photo: Alex Handy

Sun CEO Jonathan Schwartz addresses attendees at Sun's Emerging Markets Summit.

Schwartz related a discussion he'd had with a financial organization that was building its customer base in Africa. Schwartz said that the bank's representative told him, "We're growing by getting people who've never historically had a bank account to open a bank account." But the method of encouraging these accounts to be opened, Schwartz said, was rather unique and original. The bank was growing its customer base by teaming up with a wireless company to hand out free mobile phones.

"The advantage of the phone is that value can be stored in the network, and it can't be stolen," said Schwartz. Farmers could use the phone to find out what price their grains might fetch in the next town over, thus helping to eliminate some of the inefficiencies inherent in an economy with limited or slow communications. This rising tide of technology access, said Schwartz, eventually translated into better economic standing for phone users, and ultimately resulted in a greater need for these users to store their money in a checking account.

"The Internet is the most powerful social utility the world has ever seen," said Schwartz. "It's changing how economies grow. It changes how opportunities are made available to economies. The Internet has, in some senses, become a back channel for the marketplace." Schwartz said that driving adoption of technology, just as the bank had done by handing out free mobile phones, would help to increase revenues down the road.

With this in mind, Schwartz predicted that Sun's presence in the emerging markets of the BRIC countries will increase over the next three to five years. But instead of attempting to grow overall sales in these countries, Schwartz and company are spreading the gospel of free software and open standards there.

One example of this, said Juan Carlos Soto, vice president of marketing for market development at Sun, is the emphasis the Chinese government has recently placed on open source software.

Soto said that he's expecting 90 percent growth in the number of developers in China, adding, "If you look at venture capitalists, China is only second to the U.S. in terms of investment." Soto, who works extensively with Sun's startup essentials project, explained that the Chinese government showed great interest in Sun's open source processor designs. Adoption of those chips by the Chinese government, he said, could only help to increase Sun's revenues.

But Schwartz was careful to state that increased adoption does not immediately translate into overnight increases in sales.

"Gain in revenue will be a derivative of market share gain in adoption," said Schwartz. "It doesn't happen the day you pick up the operating system or the skills, but it happens over time." To illustrate his point, he called out the successes of JBoss and Red Hat, both of which saw increased usage in open source communities prior to economic success.

To take advantage of this opportunity, Sun will be redoubling its focus on mobile handsets and phones, Schwartz said. "Mobile devices will capture the Internet. They're easier to support, they're cheaper, and they're somewhat easier to secure."

Although he did not detail the specifics of his company's plans for the future of mobile platforms, he was flanked by images of JavaFX Script running on the OpenMoko, an open source phone designed by Taiwanese hardware firm FIC. ▮

DAVID LYMAN NAMED SD TIMES ASSOCIATE PUBLISHER

BZ Media has promoted David Lyman to associate publisher of SD Times.

Lyman joined SD Times in January 2006 as advertising sales manager for the northeastern U.S. and Canada. Prior to coming to BZ Media, he spent six years at Fawcette Technical Publications focusing on both print and online market opportunities.

A graduate of the Isenberg School of Management at the University of Massachusetts, Amherst, Lyman will focus on creating sales programs and other revenue-generating initiatives for SD Times, as well as coordinate the efforts of the newspaper's sales team.

Ted Bahr, president of BZ Media and publisher of SD Times, said, "David Lyman has done an excellent job helping customers grow their businesses in the Northeast. As associate publisher, he can spread his enthusiasm and creative thinking along with the other members of the SD Times sales team in other regions."

David Lyman will lead the SD Times advertising sales team as associate publisher.

Bahr added that Lyman's experience managing online programs "will be of particular value to those customers using lead-generation programs as well as print advertising." ▮

SDTIMES.COM GOES DYNAMIC

If you haven't visited SDTimes.com lately…it's time to return. BZ Media's SDTimes.com, the Web site associated with this newspaper, has been redesigned and now sports more extensive content as well as a new look-and-feel.

Spearheaded by Web developers Craig Reino and James Hulsmann, and designer Nicole Schnatz, the new SDTimes.com contains frequently updated news and news/analysis of interest to SD Times readers. The old site, by contrast, was updated only two or three times per week.

"With the new SDTimes.com, our news team is focusing more on the Web than ever before," said David Rubinstein, editor-in-chief of SD Times and the new SDTimes.com. "We're posting more stories than ever on the Web, and posting them faster than ever before. Readers who want to learn what's happening in the world of software development will find SDTimes.com to be the place to go."

The new SDTimes.com also hosts weekly podcasts from Rubinstein and from Edward J. Correia, editor of BZ Media's Software Test & Performance magazine. There are also nine RSS feeds, with more expected to debut shortly. Also on the whiteboard for the Web site: blogs and greater reader interactivity. "It's all coming to SDTimes.com," said Rubinstein. ▮

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Fortify Co-Founder Pens Tome on Static Analysis

Claims it's best way to teach developers security

BY JEFF FEINMAN

Is throwing your development team into the clutches of a training seminar the best way to give them an understanding of software security?

Much attention has been placed in recent years on keeping security in mind right from the moment that a developer strikes the first key in a line of code. Brian Chess, co-founder and chief scientist of Fortify Software, said that the best way for developers to absorb the fundamentals of writing secure software programs is through static analysis. Chess, along with author Jacob West, has written the book "Secure Programming With Static Analysis" (Addison-Wesley) to emphasize this belief.

"If you're writing in C or C++…by the time you're talking about thousands of lines of code, you could be talking about 50,000 decisions to make in creating a secure program," Chess told SD Times. "If you look at just how much programmers have to get right, you have to ask how they could do that. Certainly, awareness is a prerequisite, but is it adequate? Our argument is that it's not adequate, and you need help from automation."

Though there has been a great deal of focus on training developers in security to reduce code-based vulnerabilities, Chess said the abilities of static analysis tools, which can go through code and point out things that the programmer needs to review and perhaps fix, can provide a stronger learning method for developers. With the feedback that static analysis offers to developers, and the direct manner in which it allows them to see potential problems in code, such lessons in security can stick in a developer's mind more effectively than training lectures alone.

Chess explained that his new book is how static analysis tools work, and how they can be used to prevent input validation problems and buffer overflows. Although static analysis is a subject that has been discussed on many occasions in the past, he claimed that few have delved into systematically attempting to prevent these problems.

In later chapters of "Secure Programming With Static Analysis," Chess discusses the writing of Web applications, and how static analysis can help programmers get their creation right.

There is also some discussion of privileged programs. "If you're writing an application that is different than writing an extension of the operating system or a utility that's going to be able to talk to the printer, it is going to be harder to write. So we try to go into some of those most popular things that people commonly need to do."

TWO-STEP ANALYSIS

Chess was asked how Fortify is incorporating some of the points made in his book into the company product line, and explained that static analysis needs two components: a "fancy algorithm" that looks at the code, and a rule set to describe what is and isn't secure. Fortify has started to apply this rule set to runtime dynamic analysis by building upon its static analysis tools to develop additional products. These include Fortify Tracer, which is aimed at helping QA people test code, and Fortify Defender, addressing production monitoring through source code analysis.

Over the past few months, the application security market landscape has changed dramatically with the now-complete acquisitions of SPI Dynamics and Watchfire by Hewlett-Packard and IBM, respectively. So how does Fortify intend to hold its head above water with its competition being folded into massive companies with massive resources?

"We think that if you're going to have a standalone software security company like we do, it's going to have to address more than one little piece of the problem," Chess said. "It's going to have to look at all the activities that need to happen in order to build a secure piece of software, and that's why it was so important for us to diversify in terms of the products that we offer."

Chess believes that, in the short term, HP and IBM will be slowed down by their acquisitions, but eventually they will look to broaden out into more aspects of the application life cycle. He claimed that Fortify's strength is in its focus on its specialty, static analysis.

In 20 years, Chess said, security will simply be a notion that is incorporated into the overall process of making software. "It won't be about the idea of, 'There's how we make the software, and then there's security.'"

Chess speculated that, eventually, Fortify will focus on providing the knowledge that is needed to drive the tools. "But for now, you need to make the tools," he added. ■

NEWS BRIEFS

COMPANIES

Java development tool provider **Genuitec** and enterprise product provider **eCube Systems** have announced a partnership surrounding eCube's NXTware Integrated Maintenance Environment for legacy platforms. The partnership is aimed at providing tools to prolong the life of applications living on mainframe systems. The tooling is available through the MyEclipse Community Essentials program. . . **WibuSystems**, a company specializing in digital rights management, software protection and license management, has added integration capabilities with the Windows Embedded CE platform. An embedded platform software developer can evaluate the company's tools on the ARM platform using the Microsoft ARM Device Emulator, without the actual hardware . . . Data access management and integration software provider **CONNX Solutions** has announced integration capabilities with the Oracle relational database management system (RDBMS) and Codasyl DBMS on HP Integrity servers running OpenVMS, HP's high-end computer server operating system.

NEW PRODUCTS

HiSoftware will develop the **Accessibility Kit for Microsoft Office SharePoint Server** (MOSS). The kit will provide templates, master pages, controls and Web parts as well as technical documentation, to make MOSS more accessible for people with disabilities . . . MadCap Software, a provider of multichannel content authoring for Microsoft Visual Studio 2005 and Microsoft XPS, has launched the **MadCap Feedback Server**, which allows collaboration capabilities, including user feedback on documentation and blog entries from readers. There is also a Feedback Explorer, which allows content authors to track all reader activity.

UPGRADES

BareBones Software has released **BBEdit 8.7**, the latest version of the text editor for Mac OS X. This version includes support for the Lua programming language, updates to workflow features, and the ability to relaunch documents and browser windows that were open in the previous session . . . SourceLabs, a provider of open source tools, has announced the availability of the **SASH 2.0** Java middleware platform. The new version of the tool has integration capabilities with Apache Tomcat. SASH 2.0 is a fully integrated and supported platform for Java applications that combines frameworks such as Apache Struts and Spring, Apache Axis and the Hibernate persistence engine . . . Desaware, a provider of components and tools for Microsoft Visual Studio, has shipped version 1.5 of its **Desaware Licensing System .NET**. It includes the ability to store license certificates in a local database as part of the application's configuration settings, adds an ASP.NET server control to include in Web forms, and offers the ability to base licensing permissions on any criteria, such as host name or IP address . . . Real-time operating systems provider Express Logic has announced that its **ThreadX RTOS** now has integration capabilities with Freescale Semiconductor's i.MX27 multimedia applications processor . . . AtTask, a provider of on-demand project and portfolio management software, has released **AtTask Enterprise**, a new version of its project and portfolio management tool. The new version of the tool has an SDK and a Capacity Planner for estimating space and necessary software infrastructure . . . Safety- and mission-critical application tool provider Aonix has released version 8.4 of **ObjectAda for Windows**, the company's commercial Ada development tool for Windows platforms. The new version has integration capabilities with Windows Vista, and lets developers use ObjectAda with Microsoft Visual Studio .NET tools . . . Informative Graphics has integrated **Brava Enterprise .NET 5.3** with Microsoft SharePoint Server 2007. Brava Enterprise is an extension for SharePoint that enables secure collaboration, publishing and viewing of multiple formats, including CAD. Its interface is customizable via an API. ■

Sun, Apache Still Bickering Over Harmony

BY ALEX HANDY

Although Sun Microsystems insists it was doing the right thing by disclosing the Java SE Test Compatibility Kit last month, the move hasn't satisfied the leader of the Apache Software Foundation's Harmony project.

On Aug. 9, Sun released a suite of tests for verifying the compatibility of Java implementations. This TCK is for the new OpenJDK, which is the basis for Java SE 7; it was previously available via direct negotiation with Sun. Apache, however, claims that this new TCK does nothing to help it verify the compatibility of Harmony, its own Java implementation.

According to an official statement by Rich Green, Sun's executive vice president of software, "Sun is making the Java SE JCK—the TCK compatibility tests that determine whether an implementation faithfully conforms to the Java SE specification—available to the Java GPL software community using a license that continues to protect the Java compatibility promise while respecting the values of free software."

But if Green hoped that this release would please Apache, he was wrong. Numerous Apache members claim the new TCK availability would not change their belief that the Harmony project is still locked in limbo.

Geir Magnusson, Jr., lead developer on Harmony, said that the fundamental disagreement—which stems from what he calls a "terms-of-use clause" contained within the licensing requirements for the Java SE 5 TCK—is not changed by this release. "They placed it into the hands of the community, as long as the community not only used the GPL for the implementation, but also based the implementation substantially on the OpenJDK codebase," said Magnusson. "Since Apache Harmony is a completely new, independent implementation with no Sun code in it, the license doesn't apply."

A SINGLE LINE

At issue is one line in the Java SE 5 TCK license, which Magnusson claims limits the scope of use for any Java implementation validated against the Java 5 TCK. This terms-of-use clause, he said, unfairly restricts the types of computers into which a validated implementation of Java SE 5 could be placed.

However, the Harmony situation is unlikely to get resolved to Apache's satisfaction. Since Sun is now focused on its open source Java SE 7, Harmony is fully two versions behind in its capabilities. Appeasing Apache would apparently require that Sun revise the TCK license for Java SE 5, something that the company has given no indication that it intends to do.

Although the TCK for Java SE 7 is free to download and use, it is not an open source project, Sun insists, because it can't be modified in any way. "The TCK is a conformance test. It's the single authority against which everyone tests, and of course, a conformance test that could be altered would have neither value nor trust," noted Green in his statement. ■

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Getting 'Push' to Scale Is in the Cards

Kaazing creates platform for asynchronous request processing

BY DAVID RUBINSTEIN

If an online poker tournament later this month works as it is supposed to, then—"ka-zing!"—Jonas Jacobi might just begin to cash out.

Jacobi is the founder and CEO of a company called Kaazing, which is creating a specification for pushing information in real time from a server to a client, without requests.

"The ability to push information from a server to a client has been around [for] about 10 years, but it can't scale because you need to keep each connection open," Jacobi said. "Currently, a Web client will request information every two seconds, or five seconds. That puts a burden on the server side, if 50,000 people want it at the same time."

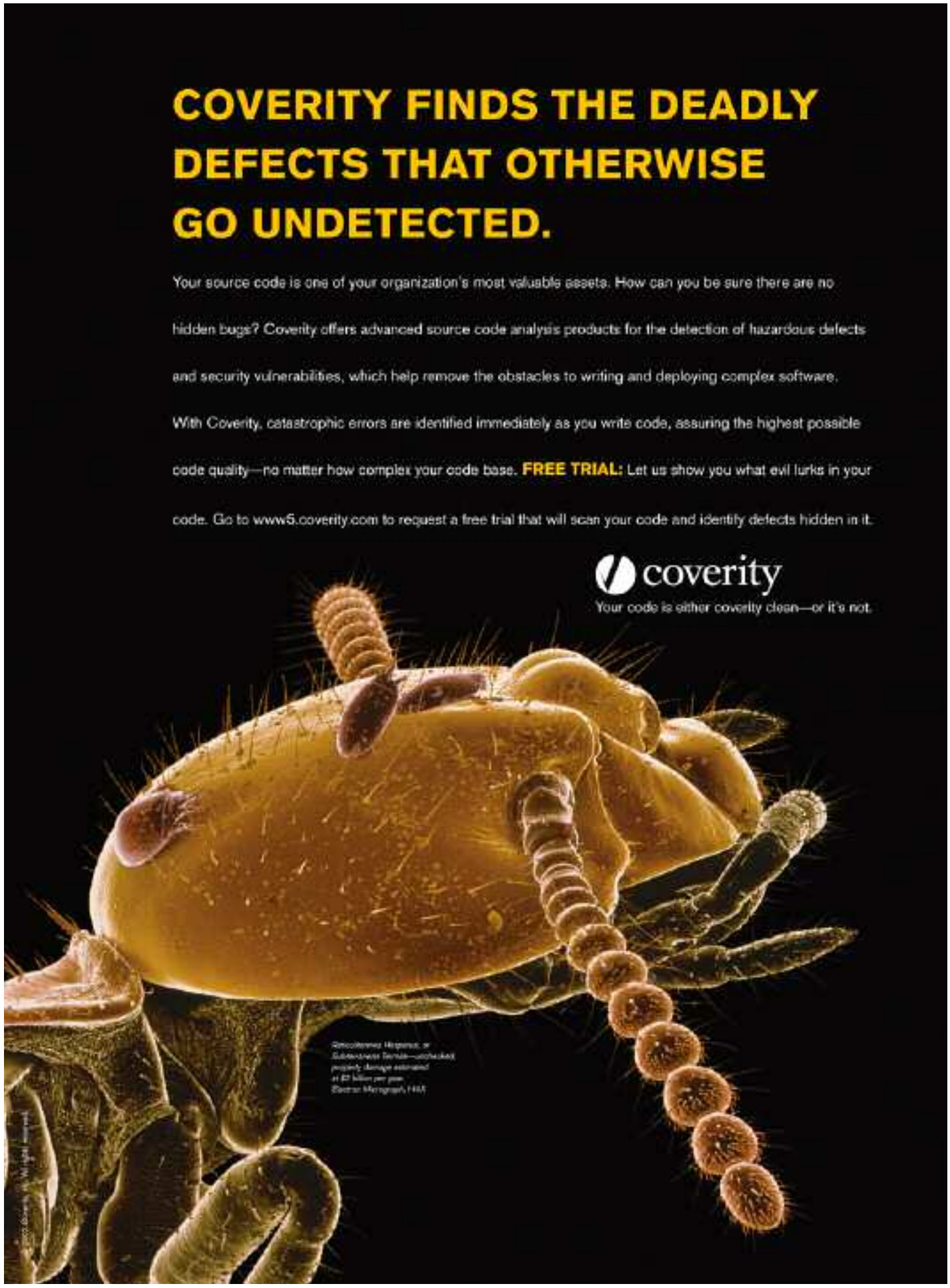
The key to scaling server-client communication, Jacobi explained, is asynchronous request processing, which allows one thread to be shared among many connections, rather than providing a thread for each connection. "With [asynchronous request processing], the user initiates one request when he navigates to the page. If there's no information available, there is no communication between the server and client. No threads need to be kept open. When something happens, the server broadcasts it out simultaneously." A subscribe mechanism allows data to be pushed out on one thread, but all subscribers to that thread will see the message, Jacobi explained.

I'LL SEE YOUR HAND...

Jacobi said the poker tournament, which will be launched at AJAXWorld in Santa Clara at the end of this month, is a proof of concept. Every player will be able to see his opponents' face cards as they are dealt, and then see and respond to every wager, Jacobi said, without having to wait for a server to respond to the request. When the next cards are dealt, the images are simply broadcast to all players at the same time. Jacobi indicated this type of solution has applications for viewing sports online, or for a transit authority keeping track of buses or trains, or in financial markets, where data is updated often and quickly.

Kaazing's commercial offering will be known as Enterprise Comet, and it's based on the open source Comet technology for enabling real-time messaging from a Web server to one or more browsers. It uses Java APIs for JMS, and EJB for business logic and queuing, and then a JVM that resides in a Java container such as Apache Tomcat, Sun's Project Glassfish or codehaus.org's Project Jetty.

Jacobi said the learning curve will be low, because it's just Java. "The development environment and model don't change. At the end of the day, you're deploying to a Java container. There's no arbitrary language or XML framework. It's not like going from Java to Flash." ▮



ITerating Weaves A Semantic Web

BY DAVID WORTHINGTON

There are more than 100,000 open source projects hosted on SourceForge.net, and SourceForge is not a world onto itself: Web sites describe, link to and review software hosted in its repository. In that vein, how can information about those projects be kept accurate and up to date?

Dedicated individuals could spend countless hours carefully categorizing software and paging through change logs, describing software their own way for their own organization; islands of information about software can already be found across the Web.

ITerating, a startup that hosts a wiki-based software guide, thinks it has a better solution born out of so-called "Semantic Web" technologies. In late August, ITerating launched a free Semantic Web service that shares data about software with other Web sites, using standardized vocabularies.

The Semantic Web was first introduced in a 2001 Scientific American article written by Tim Berners-Lee, James Hendler and Ora Lassila, who argued that Web content that is meaningful to computers will "unleash a revolution of new possibilities."

The ITerating Web service exchanges information about software using machine-read RDF metadata feeds. The service is built upon four Semantic Web ontologies: DOAP (Description of a Project), FOAF (Friend of a Friend), Open BRR (Business Readiness Rating) and Review, an ontology created by Semantic Web developer and technical author Danny Ayers to express software reviews in a vocabulary machines can parse.

ITerating's ontology framework provides a common language for comparing, discovering and sharing information about software products, said Nicolas Vandenberghe, ITerating's founder and CEO.

ITerating.com, which was developed using Hewlett-Packard's Jena Semantic Web toolkit, lists descriptions and reviews for more than 18,000 commercial, open source and hosted applications. Its software repository was populated en masse with Open BRR data. Open BRR is a model proposed as a standard to rate open source software. It is being sponsored by the Center for Open Source Investigation at Carnegie Mellon West, Intel, O'Reilly CodeZoo and SpikeSource.

The Open BRR Semantic Ontology makes it possible to compare software by standard criteria.

One of the advantages of Open BRR is that it enables software to be compared and sorted by a feature matrix.

Vandenberghe said that ITerating is working to goad the industry into adopting the BRR vocabulary and commercial vendors into sending information about software in a standard way.

The W3C has established a Health Care and Life Sciences group concentrating on building Semantic Web solutions. Currently, more than 120 Semantic Web tools are listed on the W3C's Web site in addition to nine software use cases. ▮

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Java EE 5 Support Takes The Spotlight in Geronimo 2.0.1

BY ALEX HANDY

Parachutists yell "Geronimo!" when exiting the aircraft, and now developers taking the plunge into Java EE 5 can do the same. The Apache Software Foundation on Aug. 20 released version 2.0.1 of the Geronimo open source Java application server, incorporating a last-minute fix that pushed the release back a few days.

With Java EE 5 now fully supported, Geronimo 2.0.1 offers developers access to better persistence, Enterprise JavaBeans (EJB) 3.0 and the time savings associated with annotations. Matt Hogstrom, senior technical staff member for WebSphere Community Edition at IBM, said that one of Geronimo's strongest benefits is its speed and agility. Hogstrom is a contributing member of Apache, and chairs the Geronimo project.

"We've continued our tradition of keeping a real skinny download. It's 65MB for the full Java EE stack. [It's very easy] to download and unzip and get this running. You can go from the initial download [to installed] within three to five minutes," said Hogstrom.

While the actual Geronimo codebase is a relatively small download, this new version, Hogstrom hopes, will spark big changes in developer usage. Specifically, he said he hopes that this new edition will help to spark further excitement around EJB 3.0. "I see a lot of people that are really interested [in EJB 3.0], but one thing the jury's still out on is the broad adoption of it. People got really frustrated with EJBs in J2EE. There's a little bit of a battle there because it's still called EJB," said Hogstrom. "I think once people start using them, they'll see they're not your granddad's EJBs."

Still, developers who wish to skip the EJB features of Geronimo 2.0.1 can download a smaller version of the software that excludes those bits. Hogstrom said that this trend would continue with version 2.1, which he hopes will be available early next year. That version, he said, should be more customizable, allowing developers to tailor their application server specifically to their needs.

To ease development further, Geronimo 2.0.1 includes new diagnostic tools to help identify problem areas during runtime. Additionally, Hogstrom and the Geronimo team are working to complete an Eclipse plug-in that will make developing, deploying and administrating the Geronimo application server that much easier. And for shops that are already using JBoss' application server, Geronimo 2.0.1 includes tools to make migrating easier. Future tools will also ease the process of shifting from BEA's WebLogic and IBM's WebSphere, said Hogstrom.

Geronimo 2.0.1 is available for free from Apache's Web site at geronimo.apache.org ▮

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MyEclipse 6.0 Offers Help for the Java Weary

BY ALEX HANDY

Genuitec's MyEclipse 6.0 is all about the developer. Now based on Eclipse 3.3, the new version of this integrated Eclipse distribution includes a database and Tomcat 6.0, so that developers can deploy their application for on-desktop testing with just a few clicks. Elsewhere in this update are expanded Swing support, new AJAX debugging tools and access to a repository of sample code.

Wayne Parrott, vice president of product development at Genuitec, explained that this edition of MyEclipse addresses some of the issues that he first decided to tackle five years ago. "We were just discontent[ed] with the state of Java enterprise development tools. We always had the idea that someday, when we get the big stick, we're gonna change the way things work."

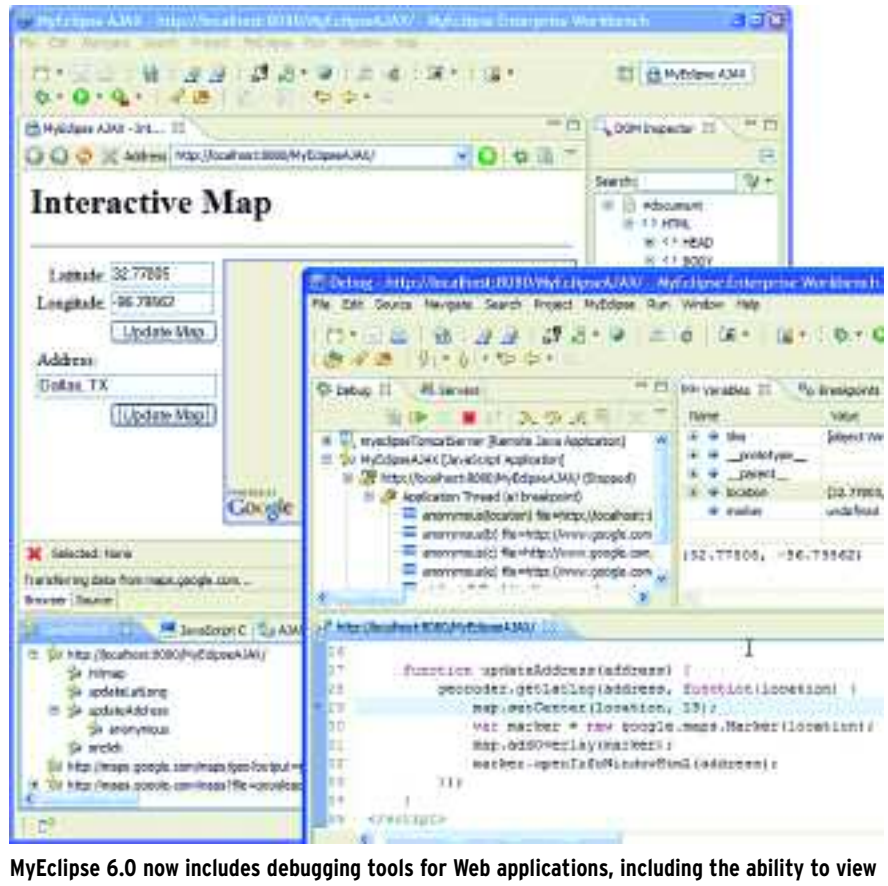
Now that MyEclipse is that big stick, Parrott and his co-workers have finally been able to put to rest some of the big bugaboos of Java EE development, and first on his list was the difficulty of testing and deploying Java EE applications. To solve this problem, MyEclipse includes Tomcat and the Derby database, preconfigured for easy launching from within the IDE.

"This gives you a Ruby-type experience. You don't have to redeploy your application. You can deploy your application to Tomcat and this database, then spin it up and it runs. It's one-click application launching," said Parrott.

For Web developers, MyEclipse 6.0 offers similar time economies for AJAX debugging. Version 6.0 includes a new AJAX DOM (Document Object Model) inspector and an improved test browser. Thus, developers building AJAX-based applications can test them out inside MyEclipse, or view third-party Web pages and sniff around their code. Parrott claimed that this will not only help to ease Web development for Java programmers, but will also aid them in finding ideas and samples to help their coding.

As for the rest of Java, Genuitec is now offering one-click access to an online repository of Java sample code. Parrott said that when new Java frameworks and technologies arrive, it could be daunting to have to read massive books and integrate that knowledge into daily work. Rather, he added, it's easier to start with code snippets showing how the new technologies work, and then move the skills gleaned there into one's own applications. To this end, Genuitec plans to maintain this sample code database by adding up-to-the-minute samples for emerging technologies.

MyEclipse 6.0 standard edition costs US$29.95 per year, per seat. The professional edition, which costs $49.95 per user per year, includes UML and architectural tooling features as well. ▮



MyEclipse 6.0 now includes debugging tools for Web applications, including the ability to view code from anything on the Web right in the IDE.

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JasperSoft Takes on Excel Export Issues

New version changes the way JasperReports manages spreadsheet content

BY ALEX HANDY

Once is enough for most products, but the open source JasperReports engine was updated twice at the end of August. Between them, the two updates incorporate new export options for developers pushing content into Microsoft's spreadsheet program, and offer new style features that allow multiple reports to be formatted identically.

Barry Klawans, CTO of JasperSoft, said that the changes in versions 2.0 and 2.0.1—released on Aug. 24 and Aug. 31, respectively—came in response to issues raised by developers, among them the chore of formatting reports. "JasperReports now has its own style format," noted Klawans. "In the past, you've had to put those styles in every report. If you changed your look, you'd have to go back and update every report. We now have a way you can define your Jasper styles in one place. It's CSS-type style management."

Klawans pointed out other changes in exports to Excel. He said the Excel export routines in JasperReports hadn't been updated since version 1.0 in 2005. Thus, when data was moved into a spreadsheet, most of it was formatted very simply: Empty cells appeared where line breaks existed in the reports. Now, users of Excel can import pure data from JasperReports, saving time and formatting effort.

Version 2.0.1 adds one feature to JasperReports, the reduction of complexity when building exporters. Previously, each export description would need to be written specifically for every requirement. But the new release allows developers to write one exporter and include optional items that can then be chosen at runtime. As an example, explained Klawans, developers no longer need to write two separate exporters if they want to produce two reports, one that includes headers and one that doesn't.

RTF EXPORTERS UP NEXT?

As for the future of this open source project, Klawans said there isn't a road map for the next version yet. But he did predict that the next item for revision in the engine will be the rich text format (RTF) exporters.

"The joy and the curse of RTF is that it's not a formal standard anyone's ever documented. There are tons of things that import RTF, but they all do it differently. We've been shooting for the lowest common denominator," said Klawans. He expects that future versions will offer RTF exporting methods that are specifically targeted toward Microsoft Word or Apple TextEdit imports.

JasperReports is free and can be downloaded at www.jasperforge.org. ▮

CODING FOR CHARITY

Can a Web application be written and put into production in 36 hours? A group of software developers took that challenge in mid-August, participating in the Northwest Charity Flex Jam with the goal of completing a virtual food drive challenge Web site for Northwest Harvest, Washington state's only hunger relief agency. The event was part of the larger 360/Flex Seattle Conference held at the Red Lion Hotel in Seattle. The Web site code will be released as an open source project, so other food banks around the country can set up their own applications using the same code. "This is an opportunity for developers to flex their programming muscles [and] learn new skills from a community of other developers while giving back to the community," said Seattle Adobe Flex User Group manager Ali Daniali. ▮

Photos by Ali Daniali, Seattle Adobe Flex User Group Manager

Windows Server 2008 Given 'More Time to Bake'

Microsoft delays RTM until first-quarter 2008 due to undefined quality issues

BY DAVID WORTHINGTON

Microsoft just reset the timer on a "Longhorn" cut that's been cooking for years. The company revealed on Aug. 29 that its long-awaited Windows Server 2008 upgrade will not be released to manufacturing this calendar year, due to self-imposed but undefined quality concerns.

The server formerly known as Longhorn is now slated for RTM in the first quarter of 2008. Perhaps in anticipation of Labor Day cookouts, program manager Alex Hinrichs compared Windows Server to a brisket that just needs more time to bake.

News of the delay was announced in a blog post made by Helene Love Snell, a senior product manager in the Windows Server Division at Microsoft.

Microsoft also notified its Microsoft Most Valuable Professionals of the delay with an e-mail message that read, "Windows Server 2008 is releasing to manufacturing a bit later than expected because Microsoft's first priority is to deliver a quality product to our customers and we need a little more time to meet the high quality bar that we set for ourselves."

Snell stated on the division's blog that the delay does not affect the planned Feb. 27 launch event in Los Angeles. Microsoft has planned a triple-play launch event for Windows Server 2008, SQL Server 2008 and Visual Studio 2008, although SQL Server 2008 will not RTM until Q2 2008.

SEASONING THE BRISKET

Among the new features that are expected in Windows Server 2008 are the so-called Server Core installation options, the Windows Hardware Error Architecture, Windows PowerShell and Windows Server Virtualization. Other enhancements include Address Space Load Randomization, clean service shutdown, a Kernel Transaction Manager, parallel session creation, a self-healing NTFS file system and the ability to use the SMB2 network file system.

Server Core roles are specialized, low-footprint installations of Windows Server without the GUI. The new roles are those of media server, based on Windows Media Services; virtualization server, based on Windows Virtualization Services (code-named Viridian); and Web server, based on IIS (Internet Information Services) 7, which will ship with Windows Server 2008.

On Aug. 27, International Data Corp. published data showing that the installed base of Windows Server worldwide climbed 2 percent over the past two quarters, to 67.1 percent of deployed servers. Linux's share declined 0.3 percent during that same period. ▮

RadView Sets Sights on Multimedia

New version of WebLoad Professional offers streaming video add-on

BY JEFF FEINMAN

RadView announced in late August the availability of WebLoad Professional 8.1, the company's open source performance testing solution with capabilities including distributed load, QA and code reviews, and support services.

The latest WebLoad Professional includes a new SDK and a multimedia add-on geared toward the needs of the growing number of sites that use streaming video. RadView executives cite a report from AccuStream iMedia Research indicating that the downloading of streaming videos increased in 2006 by 38.8 percent, even before counting user-generated video sites such as YouTube.

WebLoad's multimedia add-on supports streaming media applications using Real Time Streaming Protocol and Real-time Transport Protocol (RTSP/RTP). Developers can use WebLoad Multimedia to create composite test scripts that mix textual, graphic and streaming media objects.

"You can now load-test sites with embedded multimedia, which many new and current Web sites have," said Rafi Benami, RadView vice president and general manager for North America.

The new WebLoad Professional SDK allows testers to develop custom extensions that cater to their specific working environments. Users can create extensions by writing code or creating new metadata definitions. WebLoad provides examples with the SDK that demonstrate the creation of drivers for testing proprietary protocols.

Also new in WebLoad Professional 8.1 is an add-on that supports the load testing of Oracle Forms applications.

KEEPING UP WITH HP, IBM

RadView first released an open source version of WebLoad in April, keeping pace with the likes of Hewlett-Packard and IBM Rational.

"For a company of our size, competing with those companies is challenging, and open source, in a way, enables us to get proper market traction," Benami said. "It's very hard in any other way for someone like us [to compete]."

Benami added the company has been pleased with its move to open source. He said there have been an average of 150 downloads per day, and in the four months since going open source, there have been more than 20,000 registered members.

RadView plans on releasing its next version of WebLoad Professional in about three months, Benami said. That release will address decision-making and provide enhanced analysis and reporting tools. ▮

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_INFRASTRUCTURE LOG

_DAY 62: We don't have the tools to leverage open standards like Eclipse™ and Linux®. We have zero support. We need to do something but don't know where to start.

_Gil formed a support group for the developers. Who knew he could play the guitar and harmonica at the same time?

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When Data Flows Into Separate Pools

Water researchers design XML-based language to aggregate information

BY GEOFF KOCH

Making at least semi-informed decisions about water issues ought to be a snap. After all, there's an alphabet soup of well-equipped government agencies—notably the U.S. Geological Survey (USGS) and the Environmental Protection Agency (EPA)—involved in gathering reams of publicly available data about one of the most essential natural resources on the planet. The problem, said San Diego Supercomputer Center researcher Ilya Zaslavsky, is that all this data exists in such a hodgepodge of formats and file types that it's nearly impossible to aggregate it to answer even basic questions.

"The bigger issue is that nobody knows how much water there is," said Zaslavsky, director of the SDSC Spatial Information Systems Laboratory.

Zaslavsky is working hard to help water researchers who, despite a deep understanding of the basic science surrounding hydrology, are often limited in their ability to make use of the vast water-related databases. These info-pools are sloshing about with rich information collected from a network of ground-based measurement stations and sensors and orbiting satellites.

Water issues have always loomed large, especially in the western and southwestern United States. Now, as populations continue to grow in the most arid regions of the country, and the impact of climate change is felt everywhere, accessing and using the water data has perhaps never been more important.

DATA, DATA EVERYWHERE

In all, the USGS considers more than 10,000 different parameters as it gathers data on water in the United States. The EPA considers a comparable number, but few if any of those match those recorded by the USGS. "The databases just aren't compatible," said Zaslavsky, who noted that the same problem exists in the records managed by the National Oceanic and Atmospheric Administration, NASA and the U.S. Department of Agriculture.

The approach of Zaslavsky and his collaborators is straightforward and familiar to those who have ever been involved in just-play-nice standards efforts in technology. Although these researchers work at one of the leading supercomputing centers in the country, their eventual success will hinge more on their organizational diligence than application of computational might, which is one reason Zaslavsky has invested lots of time comparing the various parameters associated with water data collection activities.

This sounds like rather pedestrian work for someone with two doctoral degrees—Zaslavsky has one in urban geography and one in geographic information systems—but the scale and complexity of the task is daunting.

The 128-year-old USGS, the granddaddy of the federal agencies that measure and manage resources wrested from the ground, has a staggering network of 1.5 million observation stations. At many of these locations, researchers gather information the old-fashioned-way—sinking the equivalent of a dipstick into the ground to check the water level. Other stations rely on sensors to monitor hydrological data, which can also include temperature, speed and direction of flow, and level of minerals or pollutants, and a host of other characteristics.

Trying to knock this logjam of complexity loose was a three-step process. First, Zaslavsky worked to develop a uniform system of information modeling and achieve some commonality in how such databases handled location, time, units of measurement and other types of information. Next, Zaslavsky and his collaborators implemented the information model by creating a relational scheme that could support various GIS layers. Finally, the group wrote and tested Web services to expose data using uniform data signatures.

As the Web rushes away from its text-only roots, a slew of new standards are cropping up for handling different data types, particularly related to geospatial information. Perhaps the best known is Keyhole Markup Language, or KML, developed by Google to help display geographic data in applications such as Google Earth. Another example is Geography Markup Language, or GML, used to express and integrate information on geographical features, including data returned by sensors.

WATER MARKUP LANGUAGE

The SDSC group has made its own contribution to the burgeoning standards effort. The researchers helped to develop WaterML, which is XML for describing water data. Zaslavsky said that WaterML may eventually be integrated with other standardization efforts under way in Australia and Canada.

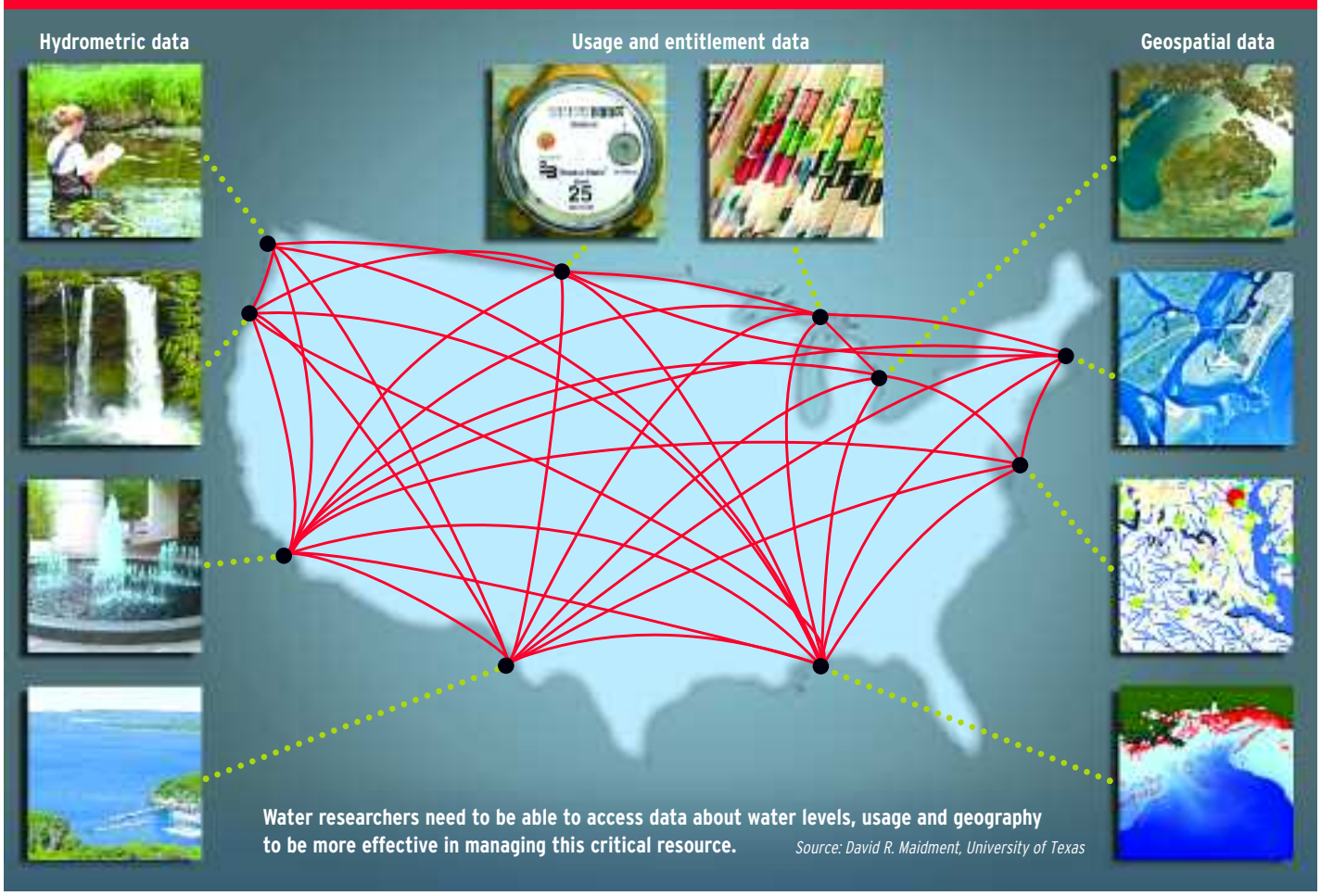
For now, though, Zaslavsky is taking a moment to savor his team's first care package of tech tools for water researchers around the country. In early August, the SDSC team shipped the first release of a software stack specifically crafted for hydrological researchers. Eleven National Science Foundation-funded university observatories received the code, which includes a database, Web services, documentation and a set of front-end applications. The San Diego researchers even installed all the software on dedicated servers, which were shipped to the participating observatories.

This is a significant amount of handholding for a researcher-to-researcher exchange, given that the recipients, some of the leading hydrologists in the country, are hardly technology rubes. But Zaslavsky noted that his collaborators have far bigger headaches to deal with than puzzling over how to make the technology work.

There are questions about water balance in different parts of the country; disputes between counties about how much water is recycled; and, in California in particular, arguments about how much water is lost by irrigation.

"Besides," he adds, "when introducing any new software to overworked researchers, it's better if it's wrapped up as a gift." ■

PULLING TOGETHER DATA STREAMS



Water researchers need to be able to access data about water levels, usage and geography to be more effective in managing this critical resource. *Source: David R. Maidment, University of Texas*

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PHP-Based Web Services a Reality

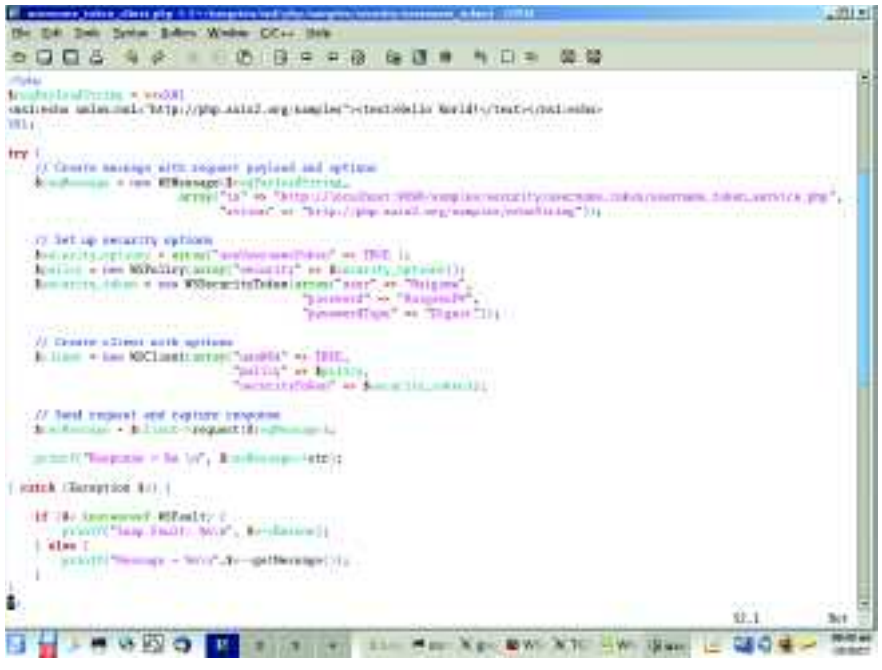
BY DAVID WORTHINGTON

Developers are accustomed to using PHP for building dynamic Web sites and server-side scripting. But, like other dynamic languages, PHP is proving to be more versatile than previously envisioned: It can now be used to create enterprise-grade Web services.

WSO2, a company that produces open source middleware for Web services, made its Web Services Framework for PHP (WSF/PHP) available on Aug. 22. WSF/PHP is a PHP extension that supports Web services standards, including the WS-* stack, WSDL 1.1 or WSDL 2.0.

The WSF/PHP client API can be configured to expose services as either REST- or SOAP-style services. It is backward-compatible with the PHP 5 SOAP extension, enabling developers to reuse existing PHP code. WSO2 designed the framework to be interoperable with Apache Axis2 and other Java EE implementations, as well as Microsoft .NET.

WSF/PHP is a binding of WSO2's Web Services Framework for C (WSF/C) and is based upon the Apache Axis2/C engine, with Apache Sandesha2/C for reliable messaging, and Apache Rampart/C for security. WSF/C and WSF/PHP are the latest additions to the WSO2 framework, which consists of an ESB identity solution, a mashup server and a Web services-oriented application server. Business rules, governance and policy, portal, security and services registry components are on deck.



WSF/PHP's editor, which supports the WS-* stack of standards for Web services, is being used here to write code to authenticate users.

"PHP is one of the world's most widely used scripting languages for creating interactive Web applications, but its broader adoption hinges on the ability to support the enterprise functionality required for business-critical Web services," said Sanjiva Weerawarana, chief executive officer of WSO2.

Weerawarana added that the future of service-oriented architectures will be heterogeneous; services will be formed with a range of widely used languages. ▮

Vista Service Pack: No Major Changes

BY DAVID WORTHINGTON

After weeks of leaked build numbers on the Web and without substantive information, Microsoft late last month opened up about Windows Vista's first Service Pack 1 and one for Windows XP that will probably represent the final roll-up for Vista's predecessor.

A white paper published by Windows Team member Brandon LeBlanc in late August informed customers to expect improvements to performance, reliability and security in Vista SP1. Customers will not see any major new features, but Microsoft will improve performance of the desktop shell.

One thing customers will not see is any significant modification to Windows Vista's User Account Control security feature.

According to a U.S. Department of Justice status report, Windows Vista Service Pack 1 will implement measures to resolve industry complaints that Windows Vista's "Instant Search" desktop search feature throttled competing search engines.

Windows Vista SP1 is due for release in Q1 2008, and a beta will be delivered to a select group of 10,000 to 15,000 testers in mid-September. ▮

PerformancePoint Next to Join Microsoft BI Triad

BY DAVID WORTHINGTON

Microsoft Office is taking on a new role as a familiar front end for back-end line-of-business applications. Office is now a part of Microsoft's business intelligence technology platform and the company has added features that allow it to integrate with the new PerformancePoint Server 2007 and the unreleased SQL Server 2008, forming a triad of BI offerings.

Redmond is banking that the ubiquity of Office can entice customers to look beyond Office's traditional roles of e-mail client, presentation creator, spreadsheet and word processor. To that end, Office Business Applications (OBA) director of marketing Andy Kamlet explained that Microsoft has made simplifying the use of Office with back-end systems a priority.

The OBA group at Microsoft is spending most of its time working on PerformancePoint and Duet 2.0, said Kamlet. Duet is being jointly developed with SAP, to integrate SAP Business Suite services with Office applications and Office SharePoint Server. PerformancePoint Server, for performance management, is due out Sept. 20. Duet 2.0 will arrive in late 2008.

Kamlet indicated that PerformancePoint is primarily targeting large enterprises, with its role-based security that provides capabilities spanning business functions such as finance, human resources, marketing, operations and sales.

THE BI TRIAD

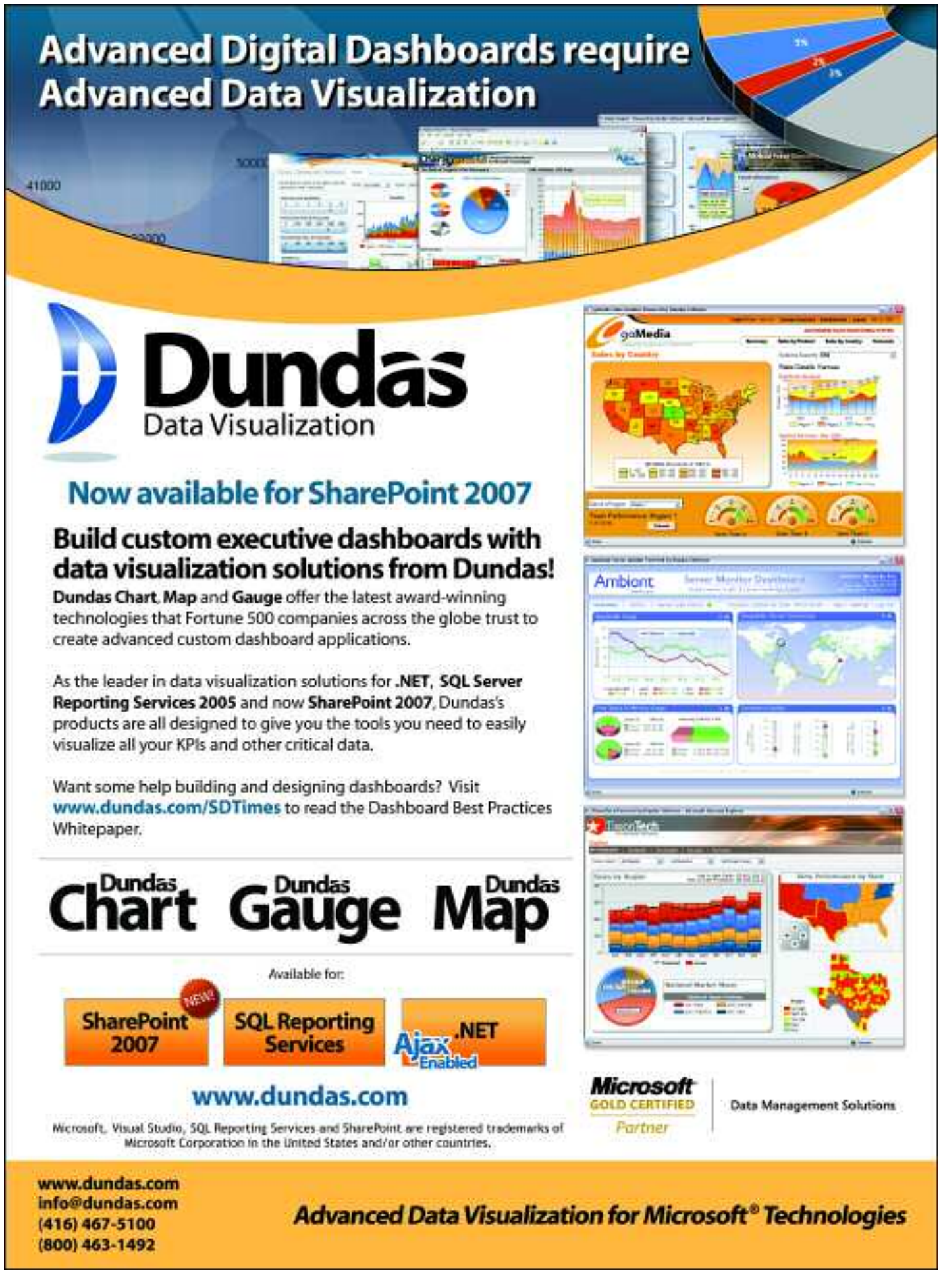
PerformancePoint has a unified user interface that hooks into Office's Excel 2007 and SharePoint Server 2007. Kamlet noted that many customers already use Excel for data analysis, arguing, "Because Excel is so widely used, why not use the UI customers are familiar with? Excel is an important, well-integrated component of PerformancePoint Server."

Although Microsoft recommends SharePoint Server for its collaborative capabilities, it is not a prerequisite, while SQL Server is because it powers key elements of PerformancePoint's analysis, data integration and reporting services. SQL Server's data integration services import data from DB2, Oracle and other data sources.

A data integration toolkit is available to help customers and partners build data providers for PerformancePoint, said Kamlet.

But to get the most out of PerformancePoint, customers will have to wait until next summer: SQL Server 2008 will not be released to manufacturing until the second quarter of 2008. Until then, SQL Server 2005 is the only option for early adopters. Specifically, SQL Server 2008 will increase PerformancePoint's enterprise scalability, particularly when working with large datasets, and will add new ways to distribute data, said Kamlet.

SQL Server 2008, formerly code-named Katmai, will provide further integration with Microsoft Office and new reporting capabilities, will manage and accept nonrelational data types, build on existing data warehousing capabilities, and support the ADO.NET data access framework. ▮



XML Tool Jumps on Mashup Bandwagon

SQLfX beta unveiled; uses lowest common ancestor for hierarchical joins

BY P.J. CONNOLLY

After years of work, Advanced Data Access Technologies has finally taken the wraps off its SQLfX hierarchical processing software, making a public beta available on Aug. 15.

Although SQLfX was first slated for release in 2005 when profiled three years ago in SD Times (www.sdtimes.com/article/story-2004071501.html), it appears that ADAT's choice of a different approach to processing XML data by implementing SQL on top was more time-consuming to build into a product than originally envisioned.

SQLfX uses the "left outer join" operator of SQL to bring two hierarchical XML structures together, based on their lowest common ancestor. According to the company, this makes SQLfX particularly suitable for mashups of hierarchical data, or any-to-any structure transformations.

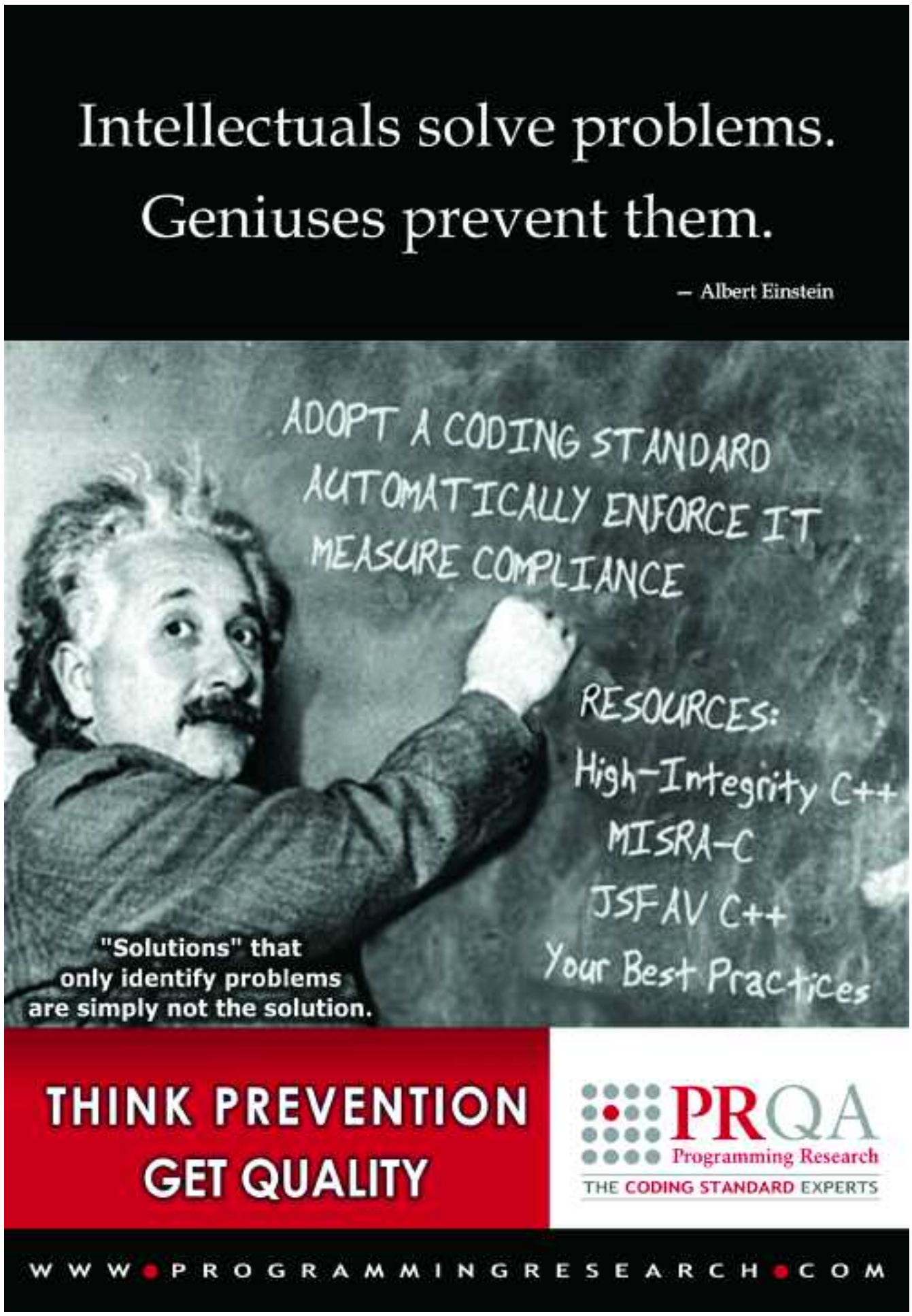
The SQLfX beta implements a hierarchical display allowing multileg global views, and the final release is planned to expand on this by including an API with procedural and nonprocedural, relational and XML interfaces.

The company positions SQLfX as an alternative to so-called "XML shredding," where a processing engine reduces data in XML formats into flat relational data, which can then be stored in a conventional database management system. Company co-founder and CEO Michael David argues that the SQLfX approach also beats XQuery, which he claims requires more explicit knowledge of the data structure, and becomes brittle when working with multileg data structures.

KEEPING IT ANSI

ADAT's goals for SQLfX, David said, are to completely insulate the SQL developer from any XML, and keep things ANSI-standard and nonprocedural. He believes that the SQL/XML specifications have been of limited usefulness, because he sees them as requiring developers who should be sticking to SQL to work needlessly with XML.

SQLfX is implemented as Java code, and runs on Linux, Mac OS X, Unix and Windows. When SQLfX becomes generally available—no date was given—the company expects to be able to allow customers to implement an existing in-place SQL processor; the beta includes FFE Software's Java-based FirstSQL processor engine, and SQLfX was designed to work with any ANSI-standard SQL processor, claimed David. The beta is available for download at www.adatinc.com. ▮



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Requirements Are the Focus of Optimal Trace Update

BY JEFF FEINMAN

Compuware in mid-August announced the general availability of Optimal Trace 5.0 for business requirements and definition management, and part of the company's Optimal suite of management tools.

The new version works to allow teams to visualize business and IT requirements simultaneously so that the resulting application can meet the needs of both sides, helping to prevent failures that stem from incomplete or poorly defined requirements can be prevented.

Compuware executives point to reports that say more than 70 percent of IT project failures result from ineffective requirements. To combat this problem, Compuware uses the concept of structured requirements, which provides project views to the user through storyboards and traceable relationships.

Optimal Trace 5.0 also has an extended custom property definition, so that many levels of requirement building on projects and project templates can be created and supported. In addition, the tool integrates with Microsoft Word.

"This new version offers complete flexibility to customize requirements structures towards the needs of any type of project," said Kayla White-Siefker, a Compuware spokesperson. "It also further strengthens Compuware Optimal's application delivery management solution by offering increased capability to propagate business intent through the life cycle." ▮

Applimation Adds Data Interfaces

BY P.J. CONNOLLY

Enterprise data management company Applimation released a slew of implementation accelerators for its Informia enterprise data management suite last month, adding support for CRM, financial, higher education, human resources and supply chain modules from Oracle, PeopleSoft and Siebel.

The accelerators use prebuilt rules templates that determine when data has to be masked, or what data tables should be archived during an Informia deployment. Most of them also support Informia Secure, the company's data masking tool that debuted in July. They join a library of implementation accelerators that work with the company's Informia Compliance Archive, Online Archive and Subset tools, which address data requirements in the areas of retention, archiving, and application development and testing.

"Our rollout of this extensive list of new accelerators demonstrates our commitment to making it as quick and easy as possible for our customers to implement data growth management solutions," noted Applimation CEO Bob Markese. ▮

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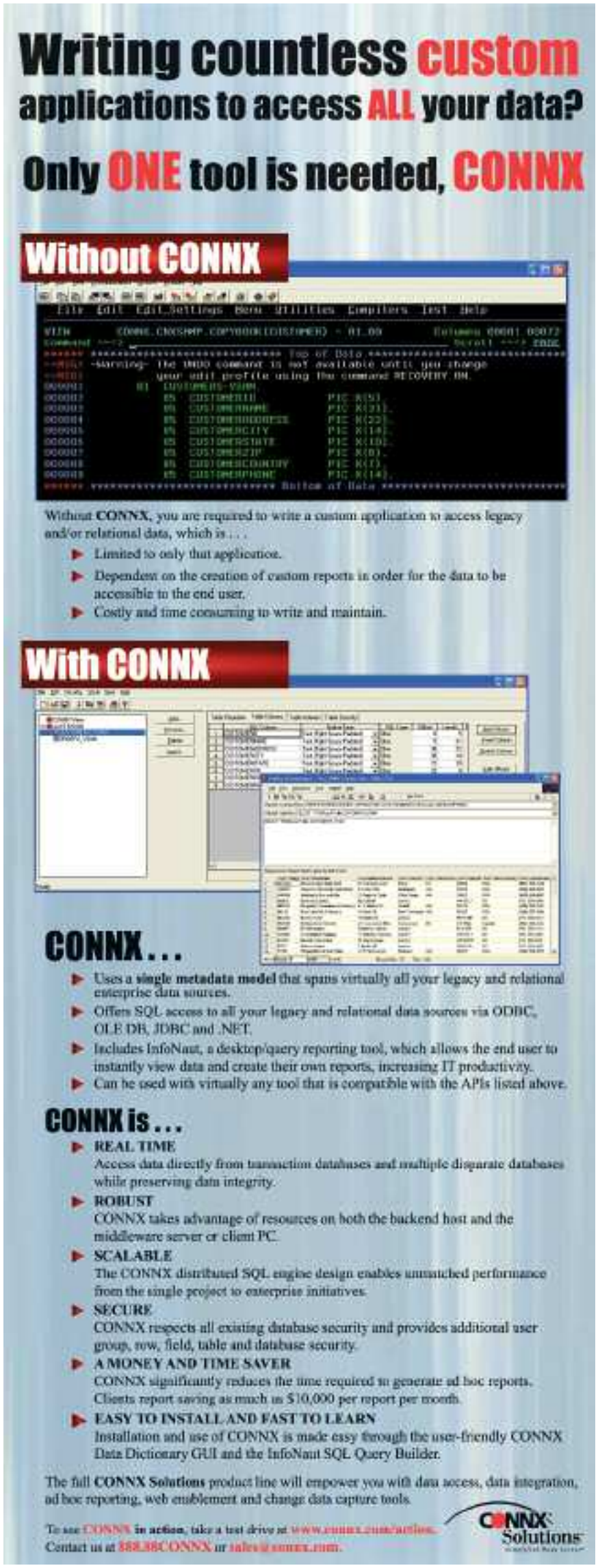

Ad Hoc Reporting For ASP.NET Gains Biz Skills

Izenda tool adds BI to Web apps

BY DAVID WORTHINGTON

Ever since the dawn of the information age, many business users have asked themselves: Why do I need to put in an IT request to obtain reports? When reporting occupied a significant portion of computing resources, that gatekeeper role made sense, but users aided by increasingly powerful desktop systems have slowly chipped away at IT's stranglehold on information. The market has responded, and business intelligence solutions have moved closer to business users.

Izenda released Ad Hoc 5.0, a browser-based business intelligence add-on for ASP.NET applications, in mid-August It allows business users to create customized reports from back-end data, adding fields, filters, gauges, grids and graphs.

Version 5.0 adds new executive gauges, charts, report scheduling, report export links and role-based security to Ad Hoc, as well as support for DB2, MySQL and Sybase. It now has an AJAX interface to limit refreshes and custom CSS support to match the look-and-feel of the existing application.

Sanjay Bhatia, chief executive officer of Izenda, said that Ad Hoc does not require any extensive integration. It can be deployed as a DLL through an Xcopy operation, extending existing ASP.NET applications with its functionality. Ad Hoc inherits an application's existing directory and security model, as well as appearance and navigation.

Ad Hoc plugs directly into a back-end database such as those from IBM, Microsoft, MySQL, Oracle and Sybase, without requiring any secondary schema or modeling. It performs no processing in the application tier—work is pushed back to the database server.

Bhatia noted that a SOAP layer is sometimes necessary to access the data layer within a software-oriented architecture. Ad Hoc does not ship with a SOAP layer out of the box, but it has a pluggable driver model that customers can use to connect with SOAP-based data sources.

The next release of Ad Hoc is expected to introduce dashboards for reports that consume different data sources, and new charts, including funneling and heat maps. ▮

FastScale Slims Virtualization

Finds useful bits, creates dynamic runtimes

BY ALEX HANDY

VMware and FastScale Technology are making highly optimized and streamlined music together. VMware users can now use the FastScale Composer Suite to dynamically manage and design virtualized environments. The suite, originally released in April of this year, can automatically provision bare metal software stacks for virtualization across servers. FastScale announced that it would begin selling on Aug. 31 a new edition of the Composer Suite that ties into VMware's hypervisor, accomplishing the actual virtualization.

"We are automatically building the environment, moving it across the network and putting it into a container," explained FastScale CEO and co-founder Lynn LeBlanc. "We're able to deliver, on-demand and automatically, a very small footprint software environment that delivers only the resources necessary. As a result, they can be very portable, which enables us to provision them on the fly, in seconds," said LeBlanc.

The keys to this are FastScale's repository-scouring, environment building algorithms. FastScale's technology uses an IBM DB2 database filled with all the applications, components, libraries and operating systems in the customer environment, and determines the bare minimums needed to run each application. With this "application blueprint," users can create extremely small environments—called Dynamic Application Bundles—stripped of unnecessary bits, which can then be run as virtualized environments, and torn down after use.

Dubbed FastScale Virtual Manager, the suite starts at US$20,000, with pricing based on the number of virtualized environments spawned, and there's the potential for that number to go quite high.

This new VMware-compatible edition can also be used with the new version of the FastScale Composer Suite, which was also released on Aug. 31. This new version includes an updated Web interface that breaks down the management of servers into a more accessible hierarchy. "We enable people with thousands of machines to be able to more quickly organize the information they need," said LeBlanc. ▮

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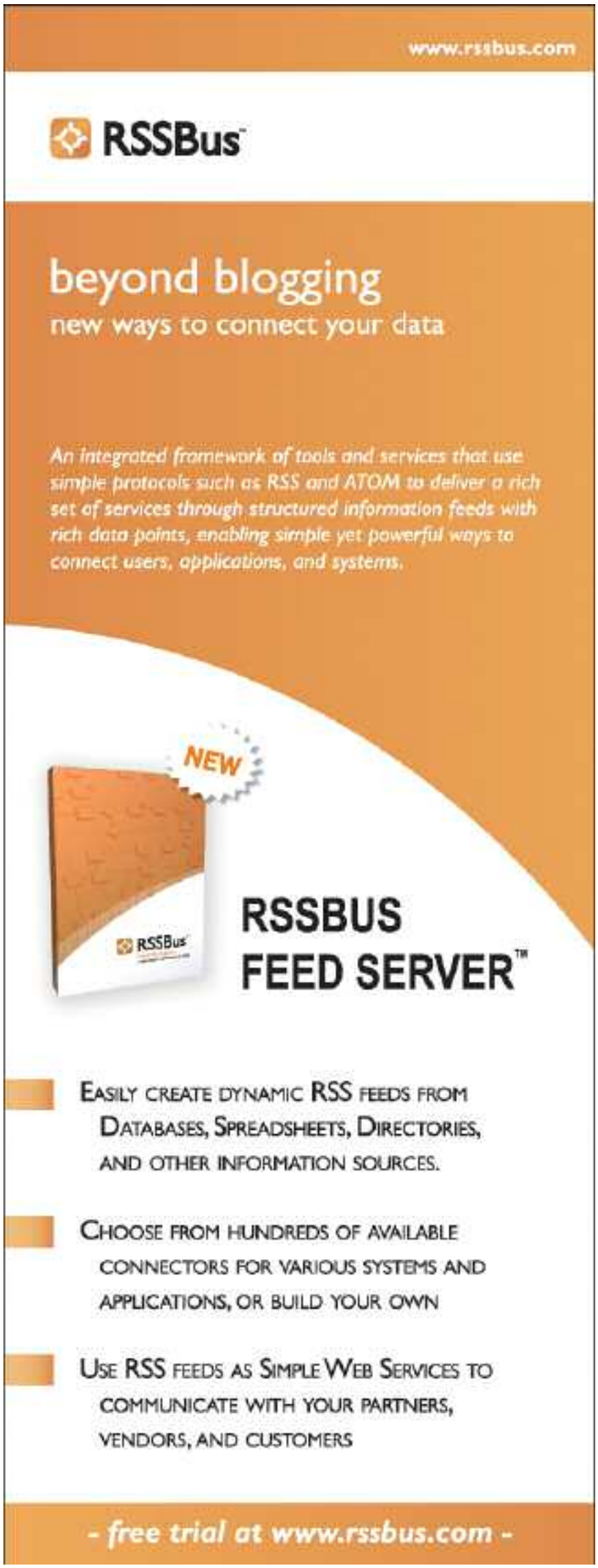


AGILE2007 Conference

Agile Efforts Involve Training the Trainers

Shortage of leaders cited as stumbling block

BY DAVID RUBINSTEIN

WASHINGTON, D.C. — The need to train mentors and team leaders came to the fore at the recent Agile 2007 Conference, held in mid-August in the U.S. capital.

As agile adoption continues to rise, organizations are finding difficulty when trying to move agile out from a pilot project or a single team to the rest of the organization, according to comments made by attendees to the event. Leadership at the team and executive levels is imperative if an organization is to reap the benefits of agile software development.

SD Times SHOW REPORT

"Training is essential, and having a good mentor on every project is crucial," Peter Harrison, CEO of global product development company GlobalLogic, said in an interview with SD Times. Leadership at the team and executive levels is imperative to make agile work within an organization.

One place where agile training is occurring is at a small but growing number of colleges and universities in North America and Europe. At one session, Kelvin Boechler of the Saskatchewan Institute of Applied Science and Technology in Saskatoon, Canada, said he began teaching agile methodologies because the waterfall methods "required so much documentation that [students] never got to the point of writing software" to complete their projects.

Brian Hanks of Fort Lewis (Colo.) College said instructors need to be more agile too. "They can't just say a project's due on X date and I'm going to use this rubric to grade it," he said. Agile methods have allowed him to find community partners in something he called "service learning," where the partner as well as the student benefit from the software project.

Among the efforts to bring developers and trainers up to speed are Agile University and Agile Commons, created by **Rally Software** to facilitate learning and collaboration. Rally founder and CTO Ryan Martens said, "We want to raise the water in the whole agile space."

Also, Rally last month announced connectors to both open source products and commercial collaboration tools, as the company continues to build out its agile development management tools for large organizations.

New open source connectors have been created for the Subversion version control system, the Bugzilla and Jira defect-tracking tools, Ant and Maven for build management, and Fitnesse and JUnit for testing. Martens singled out for recognition what he called "massively updated Eclipse Integration," including a new connector to the Mylin project.

An integration with Skype also is new, with Martens calling it "a key day-to-day tool for agile development collaboration."

On the commercial side, Rally now integrates with HP (formerly Mercury) Quality Center for automated testing, Microsoft's SharePoint for collaboration, and Visual Studio .NET and Microsoft Project for project and portfolio management.

Testing solution provider **Agitar Software** will accommodate continuous integration in the next release of its server product, AgitarOne 4.2, which was due on Aug. 27, with a guarantee of 80 percent code coverage out of the box.

The JUnit testing tool and Cruise Control build framework have been added to the product, according to Agitar director of product management Jeff Fredrick, who explained that "it's not just high code coverage you want but how quickly you can test."

Training and mentoring services provider **Valtech** said it will begin offering services this year that can help organizations with mentoring, outsourcing and meeting business goals. The three services—Performance OnDemand, Software OnDemand and Value Stream OnDemand—are designed "to get everything in line to understand the goals of the organization, not simply a particular project," said Amr Elssamadisy, principal consultant. Software OnDemand helps users build requirements in an executable format so tests can be generated to ensure the projects do what they were intended to do, he said.

Also taking the executable requirements approach is **SolutionsIQ**, which announced at the conference the launch of the open source testing tool StoryTestIQ, built upon other open source testing tools Selenium and FitNesse. SolutionsIQ is a consulting company focused on agile, but they found the length of time it took to create builds and tests dropped dramatically with the tool, and that "after two months, unpredictable delivery became predictable," according to Charles Rudd, president and CEO. ▮

More Agile Teams Distributed, Survey Says

BY DAVID RUBINSTEIN

WASHINGTON, D.C. — Agile development practices are seeing wider adoption in larger organizations, according to results from VersionOne Software's 2nd "State of Agile Development" survey released at the Agile 2007 Conference here in mid-August.

Thirty-one percent of the respondents indicated their software organization is larger than 250 people, while 57 percent said their agile teams are distributed. "This points to the maturation of agile, that it's not just at the developer/peer level," said Paul Culling, VersionOne's director of marketing.

There were 1,681 completed surveys returned in June and July from developers and managers from 71 countries, which is more than double the response to last year's inaugural survey, Culling said.

Increased productivity is the benefit from agile development most cited by respondents; 90 percent said they have realized this after implementing agile practices. Eighty-five percent said a reduction in defects was the biggest benefit, while 83 percent cited accelerated time-to-market. Those rankings were mostly unchanged from last year's survey.

Development managers and team leaders were identified by 22 percent of the respondents as being the initial champion of agile within their organizations, while vice presidents/directors of development were second with 19 percent, and C-level executives were third with 18 percent. Only 8 percent identified software architects as the champions of agile, and 6 percent said that developers were responsible for bringing agile practices into their organizations.

When discussing their organizations' greatest concerns about adopting agile, 36 percent of respondents said a lack of upfront planning was their greatest concern; 30 percent said lack of documentation was paramount; and 26 percent said loss of management control was tops. The response to the concerns about a lack of upfront planning was somewhat surprising to Culling. "People think if you go to agile, you have to throw some things out. In reality, there's more planning [with agile practices], even though it might not be upfront," Culling said. "I think it was [lean development guru] Mary Poppendieck who said, 'Delay decisions to the last possible moment.'"

Full details of the survey are available at www.versionone.com/agilesurvey. ▮

SAPIENT HONES ALM FOR AGILE

BY DAVID RUBINSTEIN

Providing usable developer tools, in Sapient vice president Brian Carter's poker analogy, is merely a matter of putting up table stakes at this point. The key to winning the pot, he said, is making them scalable to enable the adoption of agile development on an enterprisewide level.

Sapient is a global services firm that has been agile-based for more than three years. According to Carter, Sapient found few tools during that period with an enterprise focus, so the company built its own suite. The result of that effort will launch in October as ResultSpace 3.0, the company's first commercial product offering.

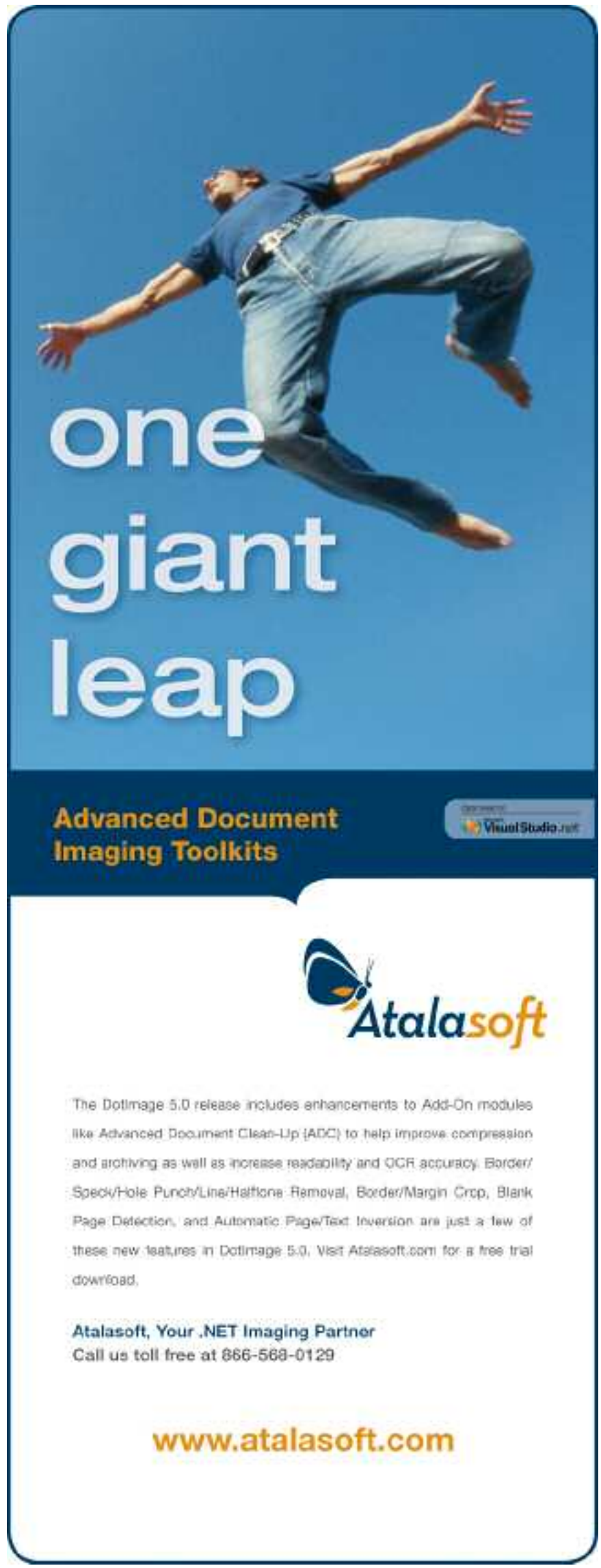
"Companies say, 'We want to do agile but we don't see tools to manage my enterprise,'" Carter said. "Tools have to help people organize their change management, risk management [and] portfolio management."

Smaller teams can get away with throwing up an unstructured wiki and doing teleconferences or Web meetings, Carter said, but those solutions don't scale for an enterprise, he said. "They won't line up with consistent tools to provide the kind of visibility executives need" to effectively manage an agile development shop, he said.

The ResultSpace interface will provide role-based views of projects, and is built to align with such tasks as release planning meetings, story design sessions and retrospectives. Visualization and reporting tools will help project managers and executives gain the insight into a project's status that they need to make informed decisions, Carter explained.

The suite will consist of tools for collaboration, defect and risk management, document management, issue management, project planning and tracking, and version control, he added, with future add-on modules to include IT compliance and governance, portfolio management, requirements management and software estimation.

An open API and integrations with third-party tools are expected to be available by the end of the year. ▮



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LOOKS LIKE WE'RE GONNA NEED SOME MORE FBI GUYS...

WE'RE DONE HERE.

AFTER THE TELEPORTER WARMS UP, WE'LL BE SITTING ON A BEACH, EARNING TWENTY PERCENT.

MASTER, THERE'S A PROBLEM WITH THE TELEPORTER -

- I CAN'T TARGET ANYTHING EXCEPT THE OFFICE FRIDGE.

OOPS, I HARD CODED THAT BECAUSE THE EVIL MASTERMIND WAS TIRED OF WALKING ALL THE WAY DOWN THE HALL FOR SODA.

I CAN FIX IT. I'LL JUST INSTALL THE BIG EXPENSIVE COMPLICATED ALM* SOLUTION YOU BOUGHT FOR US.

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3 HOURS LATER...

UH OH.

WE'RE MISSING VOLUME 7 OF THE INSTALLATION MANUAL...

WHAT!?!

MINION 15, ARE YOU TELLING ME YOU CAN'T EVEN HANDLE A SIMPLE, 27-DISC INSTALL?

WHAT IDIOT PUT YOU IN CHARGE?

ER, YOU DID -

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Lisp: Old Language, New Threading

◄ continued from page 1

even though Lisp was first specified almost half a century ago, in 1958.

Today, Gabriel works at IBM, recently joining the company as a distinguished engineer. In this capacity, he said that he's noticed a recent upswing in Lisp usage in Europe. The language remains popular among researchers, especially those working with artificial intelligence, said Gabriel. Despite the language's age, there are even some groups in Europe that use Lisp as the back end for Web sites, he said.

However, Gabriel thinks that Lisp can help modern computer society in another way. As one of the oldest languages to incorporate a threaded programming model, and with its generally obvious syntax, Lisp is a great first language for budding computer scientists, he believes.

BLAST FROM THE PAST

Gabriel spent a great deal of his career working with such students, both at MIT and at Stanford University. He noted that, in the 1980s, much of his work was done around multi-threaded Lisp programs.

"The actual models used back in the day and the ones used today are pretty darned similar. One difference is that in the Lisp world, the types are attached to objects at runtime, so you don't have to be as wordy in describing the types to the compiler," he observed.

"A lot of what gets in the way of the students is confusing the concepts with all of the verbiage you have to put in to make the compiler happy," Gabriel added. "When people are teaching something as complex as the language of a threading model, students get confused worrying about thread types, when they should be worried about what threads are doing, and how are they locking."

Unfortunately, Lisp and its close relative, Scheme, are no longer in favor at universities around the country. "I saw a list in 1989, of 600 or so schools teaching Scheme as their introduction to programming course. That dissipated fairly dramatically in the 1990s, starting with Java. The object-oriented languages took over that introductory role," said Gabriel, pointing out that Logo was also displaced during this time.

It was an unfortunate turn of events, said Gabriel, but one likely due to the highly unique Lisp syntax. "Any language that is light on the syntax and that has some sort of visual feedback, like Logo's turtles, are the simplest [to teach]. Lisp-like languages are very spare." Students found it difficult to make the transition to Java or even C, Gabriel explained, because "the syntax was so different from other languages, even though [students] could get the concepts right away." ■

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Eclipse Projects Take on SWT, Swing,

◂ continued from page 1

ILOG and SAS have already written internal code to help solve some of the initial problems, which will form the basis of this new project.

Gordon Hirsch, principal software developer at SAS, explained: "Anybody who writes a UI toolkit like Swing or SWT just assumes that they're the only UI toolkit in use by a particular application. SWT is based on native controls from the platform. [For example,] in Linux, it will show GTK Linux components. But Swing takes the different approach of trying to be platform-neutral and drawing those components itself. When you put those together, there are bound to be issues."

NEVER-ENDING PROJECT?

Todd Williams, vice president of technology at Genuitec, said the Albireo project should move swiftly but pointed out it's unlikely it will ever be complete.

"It's designed to migrate a Swing-based Java application into an Eclipse-based [Rich Client Platform] application based on SWT and Swing," said Williams. "Could it ever really end if it's successful? I don't think the answer's yes. With each new Eclipse, Swing and JDK, there's going to be interaction problems between them."

Williams cites interoperability problems between JDK 5 and JDK 6 because of different Swing implementations. "If it's successful, [Albireo] should be ongoing indefinitely. I think this is a much bigger issue than most people may think it is at the moment," he predicted

Rich Main, director of research and development at SAS, stated that a number of financial institutions have built RCP trading applications on top of Eclipse, and that these institutions likely have Swing-based components lying around in repositories, left over from their previous applications. With Albireo up and running, these institutions will be able to bring those components into their Eclipse RCP applications. This is important for the platform as a whole, said Main.

"Kick off the demo and it looks just like Windows, but bring up this [Swing-based] business analysis screen, and it doesn't look like Windows," said Main, describing a typical scenario for development managers attempting to move an application to Eclipse RCP. "Even though technically and functionally you've [integrated] it, it ends up being a deal-breaker, because of the look-and-feel" differences, he claimed.

VIRTUALLY PROTOTYPED

Another project approved in August was an Eclipse-based virtual prototyping platform, or VPP. Marc Burton, managing director of open source SystemC developer GreenSocs, hopes that this project will make electronic system level

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Chip-Level Design, New Languages

(ESL) design less chaotic. Working with members of Xilinx Research, Burton said that the chip-oriented project will not outperform existing solutions; it will simply provide a common place for innovation, which is something he said is lacking in existing ESL virtual prototyping platforms.

People have particular requirements from VPP tools, but the range of platforms isn't addressing those needs, Burton explained. "Let's just dump this stuff in a central space, so we can stop fighting software and spending engineering efforts on something that doesn't add value. It's very much like Eclipse is for debugging in general, but [designed] for VPP."

Sensitive to developers' preferences for existing tools, Burton was quick to point out that Eclipse VPP seeks to complement existing ESL tools, not replace them. "The first thing on the docket is the set of things we've already built within GreenSocs. We've already got SystemC syntax highlighting, and we already have a topology viewer. We're going to be looking at control mechanisms of SystemC emulation, [and] also at things like building SystemC projects, which falls very closely to how you build a software project," said Burton.

The IDE Meta-tooling Platform (IMP) project is another effort that was embraced by the Eclipse Foundation. This project aims to build so-called latch points for the integration of other languages into Eclipse.

Although C++, Java, Ruby and PHP all have major Eclipse projects complete enough to make those languages usable within the IDE, a number of IBM researchers have decided to build a way to make it easier to add new languages. The project seeks to create domain-specific languages that will allow developers to describe language syntax. In addition, IMP will add adapters that should allow Eclipse to play well with external parsers and compilers.

FINANCIAL PLATFORM

The final project approved in August was the Open Financial Market Platform (OFMP).

Based on Equinox, Eclipse's OSGi framework, the OFMP will offer developers a complete platform on which to build vertical financial industry applications.

A Luxembourg-based development team working for Iceland's Kaupthing Bank is responsible for OFMP, which the project members believe to be the only one of its kind. For that reason, the project's leaders expect OFMP to take a great deal of time.

For now, the team is hoping to expand its membership over the next six to 12 months, and after that, they seek to tie into to other Eclipse projects, including those covering database reporting (BIRT), developer modeling (DTP) and the SOA tools project. ▮

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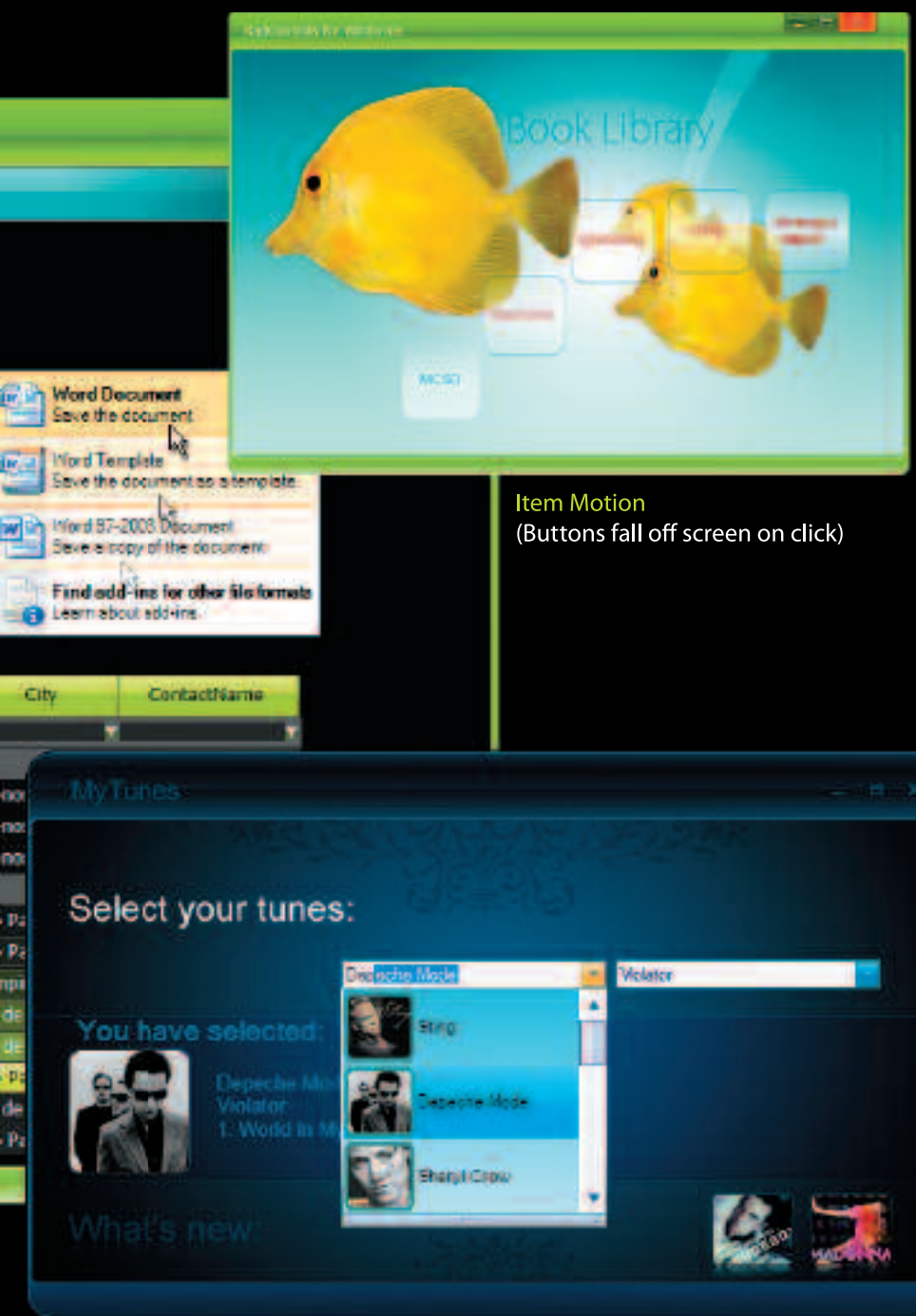

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◂ continued from page 1

patent covenants available to Xandros customers, and the companies will share intellectual property to accelerate deployments of interoperable solutions. Xandros is currently licensing Windows communications protocols.

Novell and Xandros are both members of Microsoft's Interop Vendor Alliance, a joint sales and marketing program.

THE BONDS THAT TIE

There is one major distinction between the Linspire and Xandros agreements and the Novell agreement: Microsoft undertook to distribute vouchers for support and maintenance of SUSE Enterprise Linux. Since then, Novell has received US$348 million from Microsoft for patent cooperation and support subscriptions.

These subscriptions entitle users to upgrades—upgrades that may be licensed under GPLv3. The FSF claims that if a customer acquires such a version of SUSE from a Microsoft fulfillment agent, Microsoft would be bound by the license to extend its promise of IP assurance to all downstream users of the software.

The statement Microsoft made in July denied that the company has such an obligation, stating that the voucher program does not grant any "implied or express patent rights under or as a result of GPLv3," and that it has decided that the support certificates it distributes to customers will not entitle the recipient to receive any updates that contain code licensed under GPLv3.

The official line from Microsoft's lawyers is that the company is "not a party to the GPLv3 license and that none of its actions are to be misinterpreted as accepted status as a contracting party of GPLv3 or assuming any legal obligations under such license."

The FSF does not agree with Microsoft's characterization of its obligations under GPLv3, stating, "Microsoft cannot by any act of anticipatory repudiation divest itself of its obligation to respect others' copyrights. If Microsoft distributes our works licensed under GPLv3, or pays others to distribute them on its behalf, it is bound to do so under the terms of that license. It may not do so under any other terms; it cannot declare itself exempt from the requirements of GPLv3."

William H. Neukom, professor of law at the Stanford (University) Law School and director of Stanford's Program in Law, Science and Technology, questioned how far the war of words would go.

"This is the next escalation in the war of words between the two," Neukom said. "FSF believes it can 'taint' Microsoft software by finding GPL licensed code somewhere in that software. Microsoft believes it has hundreds of patents that cover Linux and other GPL-licensed programs. They may both be right. The question is, then what? FSF wants to create a 'mutually assured destruction' situation with Microsoft, where each is afraid to act on its claim, for fear of the claim the other can bring." ▮

Serena to Bring Mashups to the Masses

◄ continued from page 1

ness end users. "The on-demand model is a proven model, and is a model that will become very predominant," said Rene Bonvanie, Serena's senior vice president of worldwide marketing. "I fundamentally believe that the majority of process and data will move into the Internet as a platform."

Carey Schwaber, a senior analyst with Forrester Research, pointed out that Serena traditionally emphasizes governance. "Governance was their entire message for several years. So I think the question is, are they speaking out of both sides of their mouths, or will they make it easy to apply governance around things like change management and demand management?" she asked.

Vail is built around a graphical Mashup Composer that helps business analysts or operation managers create business mashups. Bonvanie explained that Mashup Composer allows people to build mashed-up applications in an environment that resembles Microsoft Office.

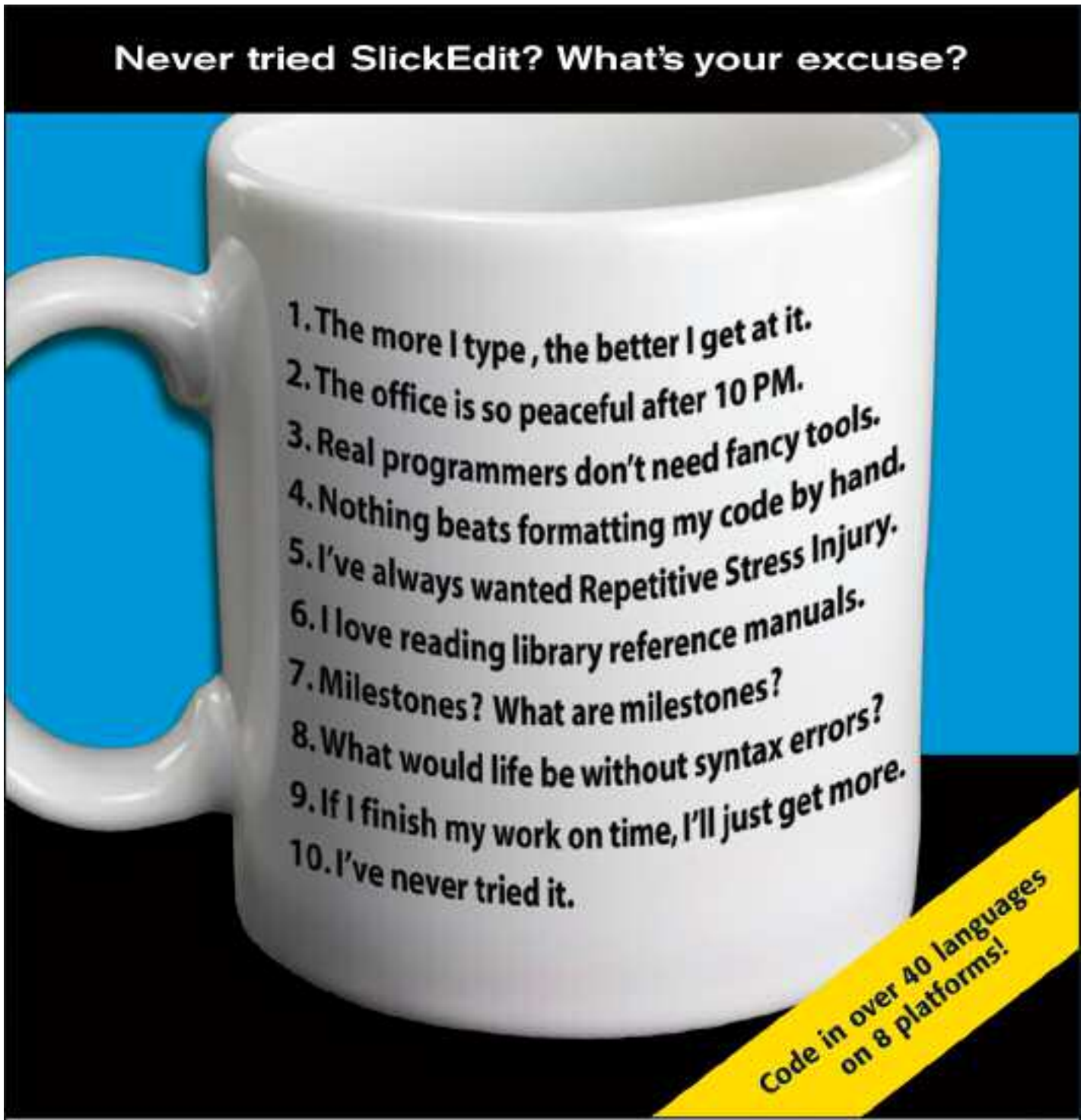
DEPLOYMENT OPTIONS

Mashup Composer is free. If enterprises want to bring the mashups in-house, the Serena Mashup Server, a deployment server that sits behind the firewall, can be purchased and is priced on a per-user basis. Alternatively, there's Serena Mashup Services, an on-demand service that will be priced on a per-user, per-month subscription basis.

"[The Serena Mashup Server] is a more classic model that consists of providing the organization with a platform behind a firewall to run these mashups," said Bonvanie. That way, IT can control the running of these apps, if that's something they want to do. Serena Mashup Services, which we think is going to be predominant, is people running this [on-demand]. What we're also going to announce on Sept. 10 is the ability to deploy these mashups to the Serena cloud, so to speak."

Bonvanie said Vail was built as a multitenant service, with SaaS delivery in mind. He added that his own experience, most recently with Salesforce.com as general manager of AppExchange and developer relations, has given him the know-how to build a team of experts that will specifically focus on helping the company adapt SaaS. Serena has also partnered with OpSource to host the infrastructure. "We're not building our own data centers or facilities; we're going to rely on OpSource to help us do this," Bonvanie said.

Schwaber wondered whether Serena's actions will mark an uptake in "shadow IT," when line-of-business customers simply don't want to put up with all the processes that IT insists upon, and they end up investing in their own technology resources—by either building their own applications or hiring outsourcers to build them. "From the IT department's standpoint, it's a very bad thing," she said, concerned about business departments simply choosing to bypass channels. "Will IT support business customers in doing that, or is it going to try to prevent them?" ▮



Quest's Toad Leapfrogs Into Data Analysis

BY JEFF FEINMAN

Quest Software, a provider of application and database management tools, last month unveiled Toad for Data Analysis, a tool to help users analyze data and create reports.

Toad for Data Analysis enables users to access many data sources and connect to all of them with the aid of Toad's project managing capabilities. The tool includes the Entity Relationship Diagrammer, which gathers the data for a particular project or task. One can use previous diagrams and add notes to it, while hiding unnecessary columns and viewing only the ones needed.

PICK A PLATFORM

"We can connect to just about any database platform," said product manager Daniel Norwood. "We have tools, like our ER Diagrammer and our database browser, that are used for understanding the schema, tables and relationships for how the database is laid out. The ER Diagrammer, in particular, is more of a visual tool where you can drag a table from the left-hand side of an application onto the diagrammer, and it will automatically pull in any other tables that are related."

With Toad for Data Analysis, a user can find any descriptions, tables or values while searching for items needed in a project. The tool lets users merge data from multiple sources, rather than having to use multiple tools in merging data. A set of tables on the local database can be created, and the user can connect with the data source and import any relevant information.

Toad for Data Analysis includes a feature that ensures the efficiency of queries that pull data from production systems. A query builder can be used to design specified queries, which can be saved for reuse.

In addition, a data compare and synchronization feature allows the user to validate data, which can be exported in CSV, Excel and HTML formats.

"We have Toad for Oracle, which is one of our largest database development administrations, and we have sister products for DB2 and MySQL, but this is the first in our database line to bring all those together into one product," Norwood said. "We found a lot of people were purchasing our database development administration tools but not really using them for administration or development. In talking to customers, we found they needed a tool that gave them access to multiple platforms, because data analysts get data all over the place."

Toad for Data Analysis will work with multiple database platforms, including IBM's DB2, Microsoft's SQL Server and Oracle.

It will be free to Toad for Oracle customers for an extended evaluation period that will end on Sept. 30, 2008. ■

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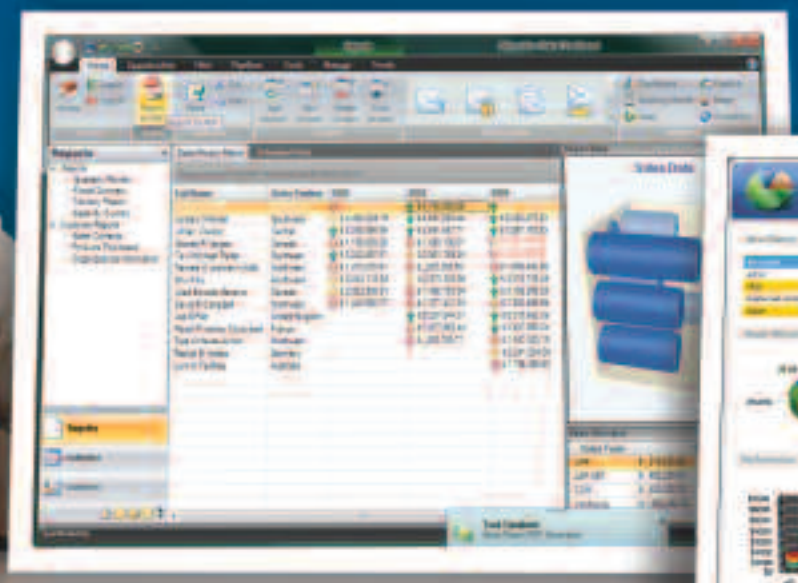

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Mobile Complete's Faraz Syed (left) notes that his company physically integrates new devices into the test hardware. This gives users of Sony Ericsson's Virtual Lab a leg up on emulation-based testing, without the hassles of loaners.

Sony Ericsson Takes Testing Online

Mobile Complete powers Virtual Lab service

BY P.J. CONNOLLY

Emulators are useful, but true testing requires actual hardware. Developers looking for access to the latest mobile devices from one supplier got a boost on Aug. 22 with the launch of the Sony Ericsson Virtual Lab, a remote testing service hosted by San Mateo, Calif.-based Mobile Complete.

The service is available globally to all members of Sony Ericsson's Developer World program, and is meant to allow developers access to mobile phones before they are released in local markets, as well as locally unavailable devices.

Six Java phones from Sony Ericsson's mass-market feature phone lineup—the K550, K810, T650, W580, W880 and W910—are the first devices available for remote testing. Ultimately, Sony Ericsson expects to expand Virtual Lab to the company's Symbian-based devices.

The advantages to such an approach are obvious: Developers no longer have to rely on demo models or even be physically present on a carrier's network. Mobile Complete handles timeslot reservation and billing for the service, while Sony Ericsson benefits in two ways.

First, is effective multiplication of the limited pool of preavailable devices, allowing the company to launch new models with more interesting applications available on day one. The other benefit is the savings to both company and developer, who no longer have to ship devices to and fro, with the potential for damage, delay or loss.

In reality, noted Ulf Wretling, Sony Ericsson's general manager for content planning and management, the Virtual Lab will offer the wide majority of developers their first chance to test applications on actual hardware. Until now, many developers were unable to participate in Sony Ericsson's loaner program, which the company explained was restricted to Premier Partner-level members.

Any Community-level member of Sony Ericsson's Developer World can use the Virtual Lab service for as little as US$100 per month, the company noted.

Mobile Complete's DeviceAnywhere platform is based on the unique Direct-To-Device hardware interfaces, which are physically integrated with the devices, allowing developers using a Java-based client to perform remote testing as if they were pressing buttons, tapping the screen or manipulating the phone.

The company, which has facilities in California and the United Kingdom and plans to add a site in Germany this year, takes great pains to create the sense of interaction. This goes to the point of supplying input to motion sensors and other features that wouldn't otherwise work on a device mounted in an equipment rack, explained CEO Faraz Syed. ▮

Envox Reloads VoiceXML Tools

BY P.J. CONNOLLY

Developers working on voice-based applications had a new line to toe as of June, when Voice XML 2.1 became a W3C recommendation. Toolmaker Envox Worldwide updated its development environment on Aug. 22 to reflect the refreshed specification, which came after three years of real-world experience with the 2.0 version of the XML format for voice-based human-computer interaction.

Envox VoiceXML Studio 7 incorporates a number of changes to the user interface, designed to make developers more efficient in their work with application components. The company also claims scalability improvements that now support up to 600 voice channels on a single application server. The tool set uses prebuilt "dialog blocks," to help developers follow what Envox has found to be the best practices in voice-based interface design.

VoiceXML Studio 7 adds the ability to work with the latest generation of application servers from Apache Tomcat, BEA WebLogic and IBM WebSphere, as well as other Java EE-compatible platforms. The update also allows the use of Windows Vista as a development host.

Although the company would undoubtedly prefer customers to use its own Envox Communications Server as a VoiceXML gateway, VoiceXML Studio 7 will work with any gateway that complies with the VoiceXML 2.0 and later specifications; the choice of gateway will also determine what applications can do. ▮

ODBC ADDED TO MCOBJECT'S RECIPE

BY P.J. CONNOLLY

McObject's embedded database family got a refresh in August, when the company added support for the Open Database Connectivity (ODBC) API to its ExtremeDB in-memory embedded database system.

This has taken two forms. On one hand, McObject added ODBC capabilities in the new release of the ExtremeSQL database interface, which is available for Linux, Unix and Windows, as well as real-time operating systems. On the other, McObject is offering the ODBC driver separately, as a way to allow 32-bit Windows applications to have ODBC access to ExtremeDB databases on Windows or other platforms.

The new ODBC interface works with the gamut of ExtremeDB deployments—in standard, high-availability, transaction logging and 64-bit editions—as well as with the Fusion hybrid in-memory/on-disk database.

McObject says its implementation of ODBC is notable, thanks to its exposure of the API as direct library calls. The company claims that doing so leads to faster execution and smaller code size by eliminating the driver manager and associated program steps. ▮

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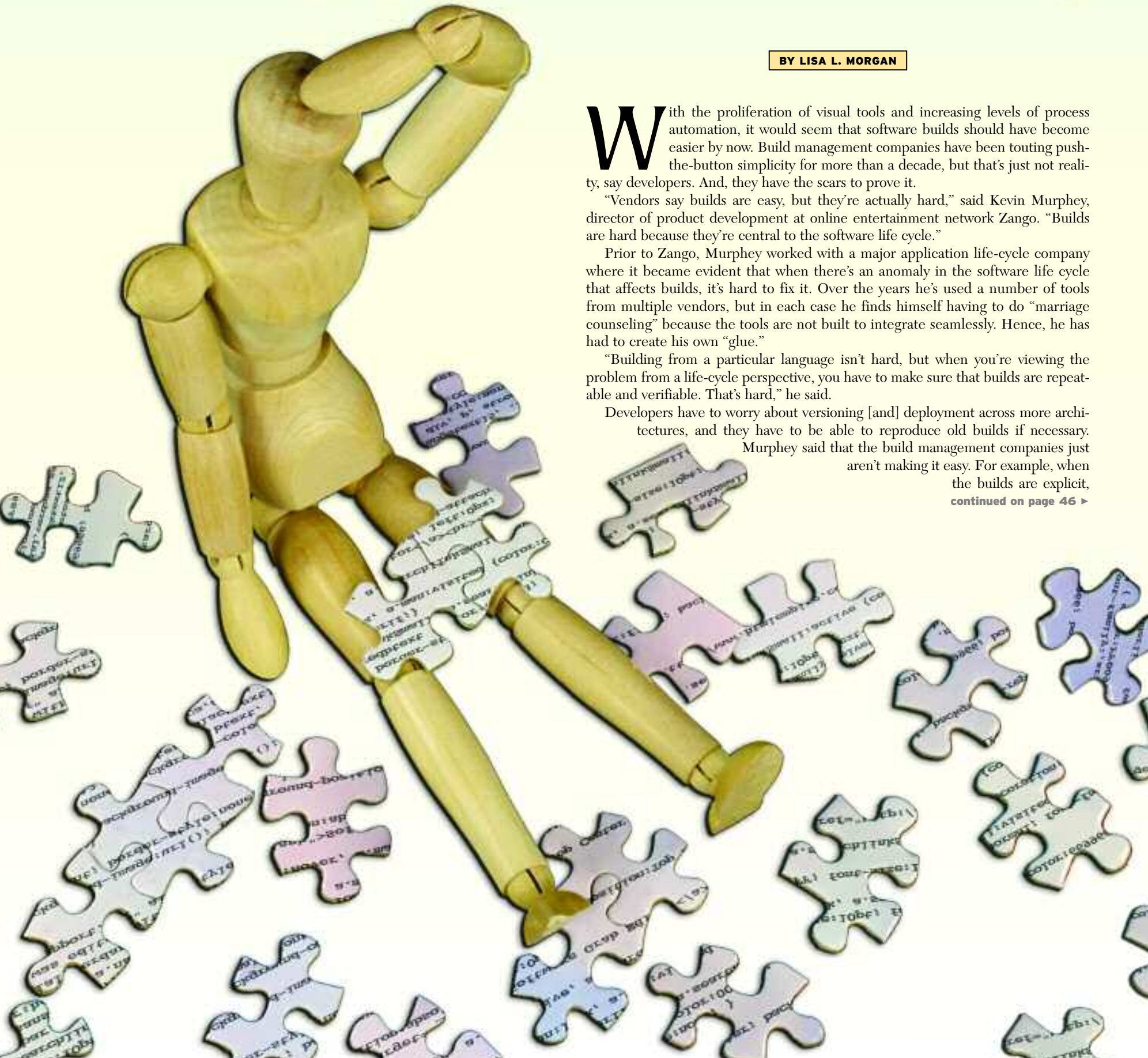

BY LISA L. MORGAN

With the proliferation of visual tools and increasing levels of process automation, it would seem that software builds should have become easier by now. Build management companies have been touting push-the-button simplicity for more than a decade, but that's just not reality, say developers. And, they have the scars to prove it.

"Vendors say builds are easy, but they're actually hard," said Kevin Murphey, director of product development at online entertainment network Zango. "Builds are hard because they're central to the software life cycle."

Prior to Zango, Murphey worked with a major application life-cycle company where it became evident that when there's an anomaly in the software life cycle that affects builds, it's hard to fix it. Over the years he's used a number of tools from multiple vendors, but in each case he finds himself having to do "marriage counseling" because the tools are not built to integrate seamlessly. Hence, he has had to create his own "glue."

"Building from a particular language isn't hard, but when you're viewing the problem from a life-cycle perspective, you have to make sure that builds are repeatable and verifiable. That's hard," he said.

Developers have to worry about versioning [and] deployment across more architectures, and they have to be able to reproduce old builds if necessary. Murphey said that the build management companies just aren't making it easy. For example, when the builds are explicit,

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Adapting Builds to Rest of Environment

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teams have checked all the code in. When they're implicit, there may be many DLLs and other shared libraries distributed across developers' workstations. However, because DLLs, shared libraries and compiler versions live on the build machine, it's hard to manage implicit builds due to versioning problems.

The solution? Use a source code management system, he said.

John Piekos, senior director at Progress EasyAsk, a search-engine company, has a different challenge with builds. His team is building four concurrent versions of software that support seven different platforms, including 32-bit and 64-bit Windows, Linux, Solaris on SPARC and *x*86, and HP-UX.

"We've got lots of small teams working on lots of installs and versions," he said.

The company maintains a number of different versions because different customers are running on the different versions.

As a result, blanket upgrades don't work, which means the developers need to build and test each of the versions discretely.

And, depending on the customer, an upgrade could involve a full installation, or pushing out a file or Java jar file for minimal intrusion.

PROPRIETARY VS. OPEN

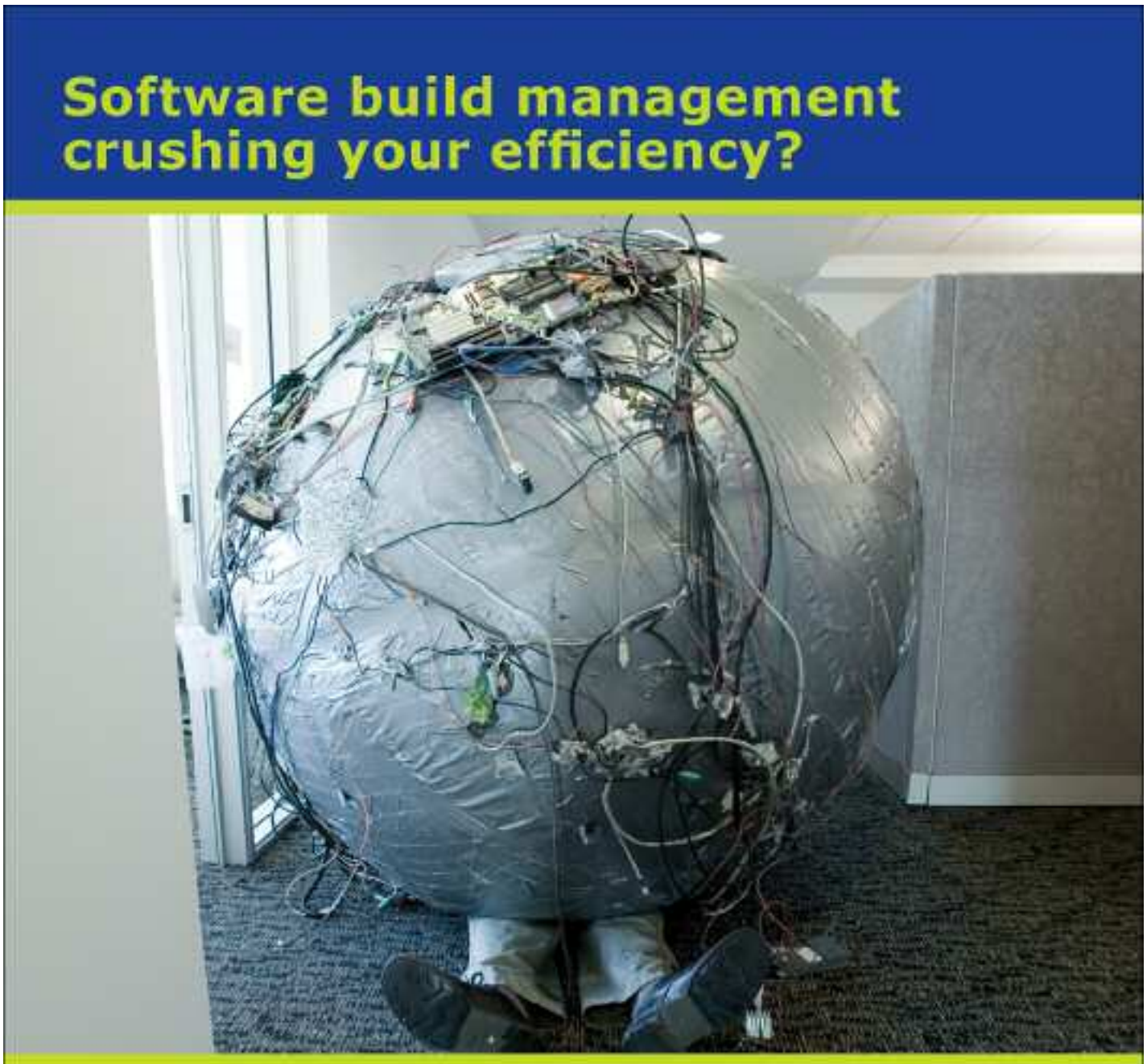
Zango's Murphey is using a heterogeneous array of tools that are both Web-based and platform-specific. On the Web site, Zango is using MySQL, .NET and PHP. On the platform side, it's 32-bit Windows.

"To run on the broadest amount of platforms and still have the smallest installation, we're using Win 32 C++," he said. "Across the company, we're using Visual Studio Team System and have the scars to prove it."

Zango is a small company but is using Team System in its offices in Bellevue, Wash.; Vancouver, British Columbia; and a few others around the world.

Lately the team has seen changes in the breadth of the build system. For example, a decade ago, if a developer compiled files once, then he didn't need to recompile them unless the source code changed, Murphey said. Now, developers need complete management and traceability of artifacts. Commercial build management solutions handle most of the problems, but not all of them.

According to Ray Oulette, CTO of online marketing intelligence and call center software provider SiteAcuity, his development team is using



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Remains Difficult for Developers

Java EE along with compatible open source frameworks. Before Oulette joined SiteAcuity, he was doing Web development work for software companies supporting both Unix and Windows. He managed mainframe and Microsoft-based projects, and worked on Web-based client/server applications and minicomputers.

Through all of this, he's learned to evaluate tools based on what they offer in regard to functional specifications. In addition, the tools must complement internal skill sets, and they have to be analyzed in light of their effect on the current infrastructure and deployment model.

Approaching the problem from that view, at SiteAcuity it becomes quite obvious given the environment that some tools fit, some sort of fit, and some don't fit at all.

"Open source contributors will tell you what tools can and cannot do," said Oulette. "With vendors, there's a lot of hype, so you have to learn what works and doesn't through evaluations and trials."

Oulette favors prototyping or proof of concept. As a result he evaluates tools based on their ability to adapt and deploy elegantly. And, he's relying more on his team's internal assessments of tools rather than what vendors have to say.

"If you're going to buy tools from vendors, make sure to have a direct line of communication with the technical staff, and make sure you get that up front," said Oulette.

DUE DILIGENCE

Some organizations are not using their IT departments for due diligence which is a mistake, according to Oulette.

It's important to determine how build management companies are going to respond to customer requests for fixes and changes, which can vary greatly depending on the vendor. Large vendors are less inclined to make changes, he said, accusing them of losing sight of what made them successful with their installed based of customers to begin with.

As a result, some are ignoring developer priorities that actually make sense.

Piekos said all Progress EasyAsk's development code is in Java, but his team still has to deal with platform-specific issues. He's using Apache Ant as a core build tool, and then he schedules builds with Windows Task Scheduler.

He said his team has considered Apache Maven and the SourceForge CruiseControl continuous build framework, and would like to use

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Software Builds Remain a Puzzlement

◂ continued from page 47

those tools because he believes that they work well. The problem is, to make builds ultimately flexible, the tools aren't all that helpful because he has to maintain a number of versions and manage one-off builds for individual customers.

"A lot of tools are free, and about 80 percent of them are good," said Piekos. "The best part is you don't need to dedicate a full-time person to learn a new tool."

Not all development managers agree with the notion of a part-time build engineer, however. Instead, some believe the best builds occur when there is a dedicated expert handing the process.

'Building from a particular language isn't hard, but when you're viewing the problem from a life-cycle perspective, you have to make sure that builds are repeatable and verifiable. That's hard.'

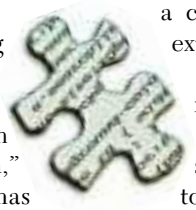
—Kevin Murphey, director of product development at Zango

FASHIONING WORKAROUNDS

Because builds aren't as simple as pressing a button, some developers are finding that they have to create their own workarounds.

"No matter what you get, you still have to create glue that allows you to adapt to the environment, processing and tracking systems," said Zango's Murphey. "The best thing to do is recognize the importance of builds and hire a developer who specializes in them."

Although tools are advancing significantly, developers still need to understand and customize builds despite higher levels of automation. Build management companies promote the practice of build automation, but the process still isn't easy. For example, if a build management system suggests editing XML files in the build process, it forces developers to translate builds to XML in their heads, which isn't practical.



"Even though we're doing more automatically with managed languages, there are still gaps, so we have to fix them with our own customization," said Murphey. "Microsoft has done a good job in that the initial build needs to be integrated with artifacts and task management—builds can't stand alone."

Nevertheless, there is still a lot of work required for teams to get up to speed on how to use the tools and what level of customization is required. For desktop applications, Zango is using C++. Requirements are part of the build, and the goal is to have tests run automatically. Most of the tests don't run on a build server, so the outputs need to be sent to another machine.

"If Microsoft Build does all the sequencing, you can end up with things that are not sequenced," said Murphey. "So, we have to sequence them ourselves, and we need to control the build to manage extensions."

Zango uses its own Perl scripts to manage the process.

Progress EasyAsk's Piekos said his team has to create its own solutions because otherwise it's difficult to tell when the build processing is going to end. To fix the problem, his team built a custom task into Ant, which is extensible.

Because Progress EasyAsk is a relatively small company, it can maintain multiple software versions without buying specialized tools.

Currently, the company has about 1 million lines of source code; if development becomes much more complex, Piekos said he'll probably have to adopt something like IBM Rational's ClearCase, which would require a full-time person and training.

By contrast, SiteAcuity's Oulette said he's had to do very little in terms of workarounds.

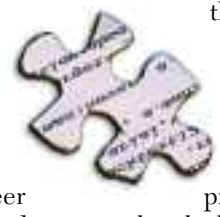
"We've moved away from building blocks of environments—database architectures, transaction management and session management," he said. "We're able to leverage frameworks that allow us to focus on applications so we're tackling the core business issue rather than basic technology elements."

Oulette said he prefers working with smaller build-management tools providers because they resolve problems more quickly, maintain tighter technology connections with their customers, and provide customers with access to product managers. Conversely, larger tools providers are harder to work with, especially for a small company like SiteAcuity.

"Large vendors are providing self-service knowledge and technology services, which are both a benefit and a hindrance," said Oulette.

The benefit is access to a tremendous pool of information. However, a great deal of the information has to do with typing code, which does not cover error situations like bugs, defects or software that just doesn't work the way it's supposed to.

WISDOM TO BUILD ON



If you want to simplify the build process, don't skimp on build engineers because they're worth their weight in gold, advised Zango's Murphey. A good build engineer makes the entire team more productive, and he or she clears the way for developers to build and test the right way.

Progress EasyAsk's Piekos splits his build engineer's time between builds and quality assurance, but he agreed that build expertise is important because broken builds translate to broken tests.

What he'd like to see are tools that inform developers about problems earlier in the life cycle so they can understand the exact quality of software at build time.

"If you're focusing on functionality, don't forget that back-end build, compile and configuration tools are able to do what you need," he said.

SiteAcuity's Oulette recommends due diligence when choosing a build management system, because the upfront work of understanding all the intricacies will pay off in the long run. He also suggests reading blogs and accessing community-based resources because there's a great deal of good, reliable information that's available for free.

"Person-to-person communication is better than online help if it's your initial exposure," Oulette said, meaning that it's better to take three or four classes as opposed to working through a series of online tutorials.

Another way to avoid time delays and cost overruns is to try a pilot program or proof-of-concept for specific projects or the infrastructure, so you can validate the tools and test your own skills in the meantime.

Last, he suggests, don't be shy about going outside your organization or your tools providers for help. It could be that the best solution is outsourcing. Or, if you're working in a small company, you might try getting involved in community-based projects, user groups and technology organizations. ▮

HOW TO SIMPLIFY BUILDS

- Hire and retain build expertise.
- Don't rely on vendor claims—do your own due diligence.
- Insist on direct communication with vendors.
- When you evaluate tools, simultaneously test your skill sets.
- Get help if you need it.

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Builds are integral to every aspect of development. After years of propping up aging build platforms, many have simply hit the wall. Today's build acceleration and build management systems can't adapt to changes in tooling, processes, platforms or code structure. This inability to adjust to change slows software production build and release times. Forward-thinking development organizations are now requiring greater agility from their build operations. Agile Builds free your developers to focus on the creative, not the mundane.

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FROM THE EDITORS

The Challenge Of Software Builds

Building software has been a challenge for as long as there have been compilers and linkers. Application life-cycle management suites include build functionality. There are all sorts of stand-alone tools, some commercial, some open source. Recently, spurred not only by the increased size of many software projects, but also by the stringent build requirements of agile methodologies, there's been an explosion in high-end solutions for turbocharging build management.

Yet, as this issue's Special Report makes plain, not all the benefits of the new technology have trickled down to where it's needed most: the development team.

While we applaud the efforts of open source projects and solutions providers in creating new build software, the real challenge will be for development organizations to recognize that they need to invest—not just in tools, but also in people. A build engineer, development managers maintain, can be worth her weight in gold, because she makes the entire team more productive, and clears the path for developers and testers to get their jobs done more effectively.

We also urge everyone, from development managers to build management companies, to realize that build automation, while desirable, isn't easy to set up or maintain. Every situation is different, of course. Some projects are straightforward, with a single language, a concise set of artifacts, and source code in a managed repository. Other projects involve widely heterogeneous systems, distributed teams, overlapping projects, and source code with a variety of licenses. Automated build management can be a savior…but except in simple cases, it's not plug-and-play.

The overarching message: Don't neglect build management. While architecture, coding and testing may have higher visibility throughout the application life cycle, they're meaningless without the proper investment in software build technology and processes. Invest wisely.

Lotus 1-2-3 Macros, All Over Again

Software developers "of a certain age" may remember, with varying degrees of fondness, the release of Lotus 1-2-3, the killer-app spreadsheet for IBM PCs. One of Lotus 1-2-3's key features was its macro capability, which allowed users to embed fairly sophisticated logic into spreadsheets.

What happened, in one company after another, is that a line-of-business person discovered Lotus 1-2-3 and eventually started writing macros. The macros grew and grew and grew. And then, one day, they broke. Guess who had to fix them, and maintain them going forward? Too often, it was the IT department's programmers. Their long-suffering response: "Why didn't you ask us to get involved earlier?" However, as we all know, it was much easier for an end user to do something himself (even if it was done badly) than to get official approval for the project; IT was there to clean up any mess.

History has repeated itself many times, as business users began using various applications and Web sites for business purposes. And it's going to repeat itself again, thanks to technologies like Vail, a new business mashup tool and SaaS offering from Serena. Business users are going to jump all over tools like Vail, and many will take the skunkworks approach, making mashups without engaging the IT department. But ultimately, we know that the enterprise software developers will be tasked with embracing, extending and supporting the mashups that these users create.

Our advice: Get ahead of the trend. Don't wait for your end users to discover the potential of mashups, and for them to begin building business-critical applications without knowledge, training, documentation, security and standards. Down that path madness lies.

Instead, embrace the new technology first. If end users want to build their own mashups, then train and support them, instead of pushing them underground. Nobody wants to relive the Lotus 1-2-3 macro nightmare again…and we don't have to. ∎

Fear and Embrace Tools For Agile Teams

"Tools are scary." I heard that during a session on tools for Scrum teams at the May Scrum Gathering. The guy was referring to software tools for agile teams, and he explained that when he hears that a team, program or organization is looking for tools, he fears they will soon be abandoning agile practices.

Tools can be scary to agile developers. Not like monster scary—storming in loudly to drive developers back to their cube caves to generate huge design docs while destroying the focus on potentially shippable code. More like disease scary—an insidious cancer slowly replacing face-to-face communication just a little too often, turning focus away from working code just a little bit, tempting teams to gather one or two non-agile metrics.

Tools can also be, well, *tools*—helpers that foster communication, enable burning visibility throughout the organization, and enhance collaboration among team members and with customers.

What's an agile team to do? Just three things:

1. *Newly* agile teams should avoid software tools at all costs.
2. Wait until you have a problem.
3. Choose tools designed to support agile principles and practices, then choose one barely sufficient to solve the problem.

NEW TEAMS SHOULD AVOID TOOLS

Agile practices can feel awkward and unfamiliar. As individuals and as teams, we have habits about how we work that run counter to what agile principles recommend. For example, we may tend to avoid face-to-face conversations, preferring to stay safely within our cubes. Or we may keep progress reports vague, to avoid being held accountable for elements out of our control or for early, unfinished ideas for solutions.

Instead, team members need to develop *new* habits, like talking daily to the customer/product owner while implementing stories and reporting honest task updates in daily standups. When we make these changes together, as a team, we build the trust and habits that allow agile methods to succeed in improving planning and communication.

Meanwhile, building trust and habits is a part of the process of gelling as a new team with a newly expanded membership: Testers, tech writers, a product owner or customer and others now join the team of developers. That team has to go through some forming and storming on its way to norming and performing. Much of that work will happen in the interactions created by agile ceremonies: daily standup, planning sessions, story workshops, reviews, retrospectives.

In these early stages, software tools are likely to get in the way. If team members update status via a tool rather than talking to colleagues, the communication is less robust. Team members are also less likely to be diligent about tool updates, so it's better to report via big, visible wall charts. Thus it becomes very visible when updates aren't happening, until they become habit and the benefits become clear. Another example is using a tool during planning sessions. If the team is staring at a projected screen, then they aren't paying attention to teammates to learn how they communicate nonverbally or how they estimate or decide priorities.

Also, agile is an umbrella term for many, many practices. Teams and organizations often take some time to determine which practices they will use, and how. Will the backlogs for the three teams building that one application be kept separately, or together? Will we estimate in points or days? What is our definition of done? What will we track and report at reviews in order to promote quality? How will we increase automated testing?

Tools can sometimes help teams answer these questions a little too quickly. A given tool might promote a certain direction, before the organization has really built its experience. Or, a tool might provide so much flexibility that the initial set-up is almost arbitrary. And then changing that set-up might be a pain, which reduces the organization's options too soon for making agile work for them.

WAIT UNTIL YOU HAVE A PROBLEM

Software people love software. It's tempting to start using an app just because it's cool. Or rationalizing the Big Solution to the little problem. My personal temptation is apps for my PDA. Like that time I bought a time-reporting app because I had a new gig as consultant (after years of being an employee). I thought it would make tracking my consulting time easier. Turned out, though, that relying on my Outlook calendar was plenty easy and provided all the detail I needed. I didn't have a problem, but I spent hours installing and configuring the time app anyway, and then tried to devise a "process" for myself to make it useful. I inadvertently increased my pain.

A newly agile team or organization is making many changes to its processes, practices and interactions. Using retro-

spectives, agile teams and organizations approach process improvement using the agile principles of always delivering the highest value (prioritized backlog) and delivering incrementally. Thus, teams may develop a long backlog of potential improvements but choose to focus only on the one or two items that will bring the most value. Then, the team inspects the results before choosing the next most valuable improvements.

Based on that approach, the decision to use a tool should be the result of the inspect-and-adapt process. Only when a pain has risen to the top of the organization's list of concerns should the group decide to seek a solution.

BARELY SUFFICIENT

Again, it is helpful to apply agile principles to the tool question. The simplicity principle of Extreme Programming leads to the practice of barely sufficient designs and architectures. By choosing a tool that is barely sufficient to solve the problem, you avoid adding unnecessary complexity into your process before you need it. You also avoid the overhead of over-designing the solution to your problem.

By choosing a tool built with agile development in mind, you also avoid introducing unexpected consequences. I find it fascinating—and sometimes cool and sometimes horrible—that software tools can encourage specific behavior, sometimes in ways we really don't expect. For example, I adopted Gmail because I liked the more-responsive Web interface. However, that tool specifically promotes the saving of e-mails, by providing an "archive" function that is more prominent that the "delete" function and by providing robust search. I now manage e-mail differently.

Tools built with agile principles and practices in mind are more likely to encourage agile behavior. Here are some generic examples of problems and tool functionality based in agile:

- A product backlog management tool that makes it easy to rank (not just prioritize) stories, and that makes it easy to write lightweight user stories, and that makes it easy to break epics down into smaller stories.
- A test and defect tracking tool that helps teams tie story acceptance to testing.
- A project management tool that helps teams track iterations, monitoring task progress and story acceptance, and measuring team commitments and burndowns.

It takes diligence and dedication from the organization, program, team and individuals to reap the benefits of tools and keep the disease of non-agile practices out. ▮

Ronica Roth is an agile coach and consultant with Rally Software, which sells tools for agile software development.

Should Bloggers Be Edited?

Wind River rumors raise questions of responsibility

Newspapers have been called the rough drafts of history. From what I've seen in recent years, blogs are proving to be the notes that become the rough draft.

On Wednesday, Aug. 15, I received an e-mail from one of my PR contacts, saying her client wanted to comment on a rumor going around that day about the possibility that IBM would buy Wind River Systems. By the end of the morning, this e-mail had been forwarded to me by my boss, his boss and two other colleagues. It could have been a big story.

But the funny thing I noticed is that all the footprints led back to the same source, a post made by Tom Foremski on his Silicon Valley Watcher blog on Aug. 14. He was citing an anonymous source for his information, as one might expect.

By Aug. 17, the deal still hadn't materialized. But the peculiar thing is that Wind River's value had grown by US$55 million on that Wednesday alone, thanks to investors trying to jump on the bandwagon. Even Foremski noted on his blog that his "usually reliable" source hadn't panned out this time. But I think we drew different conclusions from the way the stock market reacted to the original post.

Foremski saw it as a validation of his $10,000-a-year tip sheet. That's his business, after all; if I thought I could find 100 people willing to pony up 10 grand for collected gossip and musings, I'd have one of my own.

I saw this as a possible pump-and-dump, but couldn't figure out why Wind River was the target. Most of those efforts involve companies that no one's ever heard of—doing that with an industry leader goes to a new level of shadiness.

Of course, what's more likely the case is that the deal is either still being hammered out, or that it was just a source having the wrong information. It happens. That's why conspiracy theories are entertaining, but not as plausible as the Robert Ludlums of the world might have you think.

At the same time, it was a sobering reminder of the power that a single, reasonably well-respected blog has. As Foremski noted, "One post equals 55 million dollars."

Heaven knows, if I wanted to run a stock swindle, the best hole card would be an unwitting blogger of Foremski's stature. He was the Financial Times' man in Silicon Valley for years, and presumably has the digital equivalent of a Rolodex as big as my head. If he can't be trusted, I'm not sure who can.

But I don't completely trust blogs as a medium. Professionally, I've always been a little wary of them. In my last role with another publication's reviews lab, I turned down the opportunity to have one, noting that I preferred to be edited. That's because good editors make me look better. Even if I were to file the cleanest possible story—and I do that as a matter of habit—that doesn't make it perfect.

I'll be honest: I sleep better at night knowing that if someone's going to invest $55 million because of something I wrote, it's based on something more substantial than my notes. ▮

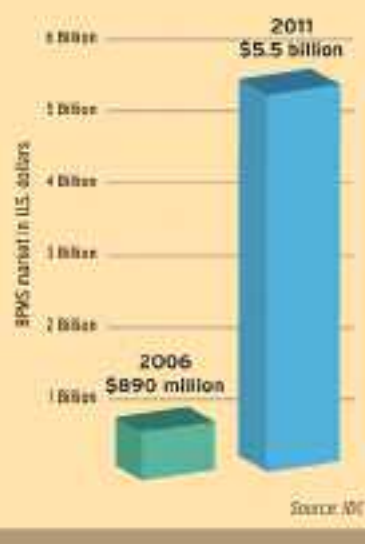
P.J. Connolly is a senior editor at SD Times.

BPMS Market to Explode In Coming Years

DATA WATCH

The market for business process management suite (BPMS) software is poised for dramatic growth over the next five years, according to recent research from IDC. The study found that because BPMS penetration is "minuscule" and many BPMS installations were purchased as projects instead of core infrastructure components, growth is expected to come from new investments in BPM as well as existing customers refurbishing their initial installations.

IDC estimates that the BPMS market in 2006 stood at US$890 million, growing that year alone by almost 80 percent. Over the next five years, the market is expected to experience rapid expansion at a compound annual growth rate of 44 percent; by 2011, it should reach $5.5 billion.



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ColdFusion 8 Warms Cockles

Developers' fascination with the presentation layer has generated a profusion of Web development frameworks during the past decade. And, now RIA threatens a similar profusion.

While choice is a wonderful thing, it's hard to argue that the wide range of Java Web frameworks has been good for the industry. A few frameworks, sure; but many, not so much.

The cost is significant: Many sites are sitting on reams of legacy code simply because they chose what was once the dominant paradigm. Consider, for example, the Apache Struts project's release this summer of versions of Struts 1.3.x and 2.0.x. Struts 2.0 might be a surprise to some readers who expected that JavaServer Faces (JSF) would be the successor to Struts 1.x. And, in fact, it was touted as such by many people, including Craig McClanahan, the primary author of both Struts and JSF. It turns out the successor is now neither JSF nor Struts 2.0—it's Shale, which is McClanahan's new project based on JSF but housed inside the Struts project at Apache. Now it's its own top-tier Apache project—unassociated with either JSF or Struts. You still following?

The situation reflects a problem I've touched on before: The open source software (OSS) community likes to reinvent the wheel...a lot. In some areas, this pullulation of alternatives has few costs—for example, using one of the dozens, perhaps hundreds, of OSS text editors. But in frameworks, the problem is truly costly. At some point, managers start wanting a solution they can depend on long term—one that will advance with their needs, not forsake the original adopters, and have enough of a community that locating developers will not be the equivalent of finding Judge Crater.

Not a lot of OSS products make the cut, but a few commercial ones do. One that is easy to overlook is ColdFusion from Adobe (previously from Macromedia, and originally from Allaire). First released in 1995, the product has known 10 releases, the most recent being ColdFusion 8, which shipped in late July.

Even prior to this release, ColdFusion had several interesting aspects. The most prominent is its legendary ease of use. The tag-oriented language—ColdFusion Markup Language (CFML)—was one of the Web languages to make all sorts of complex user interactions easy to articulate in a purely declarative syntax. As a result, vendors could assemble sites that had considerable functionality without investing in long, painful software development projects. And scalability of ColdFusion server was not a problem—half.com, the eBay subsidiary, ran on ColdFusion. (This no longer appears to be the case, however.)

Integration Watch

Another interesting implementation detail was added during the past few years: ColdFusion code can be converted to Java bytecodes. In fact, for the last few releases, Adobe has bundled a Java EE server, on which the Web applications could be deployed. (The server is Allaire/Macromedia's little used but excellent JRun product. However, ColdFusion can be run on other Java EE servers, of course.)

Release 8 adds the ability to generate PDF files directly from HTML (This is, after all, an Adobe product now), and it integrates with various Adobe technologies, such as its LiveCycle workflow engine.

ColdFusion 8 also integrates with Microsoft .NET—making it one of the few platforms that can work directly with the two major enterprise runtime frameworks. (It previously offered COM, CORBA and EJB connectivity.) So, apps written in CFML can be run unchanged just about anywhere.

Despite the rich tag libraries the product bundles, ColdFusion bundles two native scripting languages: the proprietary CFscript for applications, and an ECMAscript subset called ActionScript for operations on the server.

In sum, ColdFusion is a mature Web application framework with many features—especially ease of use—that should endear it to sites struggling with the problem of which Web framework to adopt.

However, I should point out that ColdFusion is different in key ways from competing frameworks: It is neither free, nor open source. The closed source aspect I doubt makes much difference here. And given that the price of ColdFusion runs US$1,300 for the standard edition and $7,500 for the enterprise version, I doubt cost will be much of a deterrent. A free developer edition is available for download from Adobe, and several ISPs provide inexpensive CF server hosts for companies that prefer not to host on-site. Regardless of the choice, ColdFusion 8 is sure to please and solve the problem of Web frameworks for a long time to come. ■

Andrew Binstock is the principal analyst at Pacific Data Works. Read his blog at binstock.blogspot.com.

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Orchestration in the Key of SOA

If there is any confusion in the world of SOA, it's around the role services play when interacting with orchestration. In general, those who understand orchestration don't understand services, and those who understand services don't understand orchestration. Thus, many SOAs are born without process or orchestration layers, or a place where business processes can be changed using a configuration paradigm, rather than reprogramming. That's architectural agility, and why we do SOA in the first place, so you typically need orchestration and process management.

Orchestration is not that scary when you consider that it's really about process automation; we are just building on the same notions. Indeed, you'll hear me talk about orchestration and process integration, process automation, workflow and BPM interchangeably, since the patterns are very common between the technologies and approaches.

The best way to consider both notions of service and orchestration (and process integration, in general) is to think of them as independent layers, where the process layer is a meta application existing on top of the services, calling the services when needed. It's at the orchestration layer where the services are invoked in certain sequences, and using certain logic, to form the solution. This interaction allows the architect and the developer to place certain things into certain domains.

Orchestration is a necessity, the layer that creates business solutions from the vast array of services and information flows found in new and existing systems. Orchestration layers allow you to change the way your business functions, as needed, and to define or redefine any business process on the fly.

SOA Watch

We can define orchestration as a standards-based mechanism that defines how Web services work together. Orchestrations may span a few internal systems, systems between organizations, or both. Moreover, orchestrations are long-running, multistep transactions, almost always controlled by one business party, and are loosely coupled and asynchronous in nature.

Orchestration encapsulates and leverages services, binding them together to form higher-level processes and composite services. Indeed, orchestrations themselves should become services, and may be leveraged as services.

Here are a few things to consider:

- A single instance of orchestration typically spans many instances of service- and information-oriented points of integration, perhaps many domains and even organizations. Thus, you typically have one orchestration for many services.
- Most orchestrations leverage public standards such as BPEL. However, there are a few competing standards, such as for process and workflow, and technology that can do very much the same job—binding services into processes to form solutions.
- Orchestrations may be available to everyone or just the owner, and shared, for supply-chain integration scenarios and other B-to-B activities.
- Orchestrations are usually driven from a single party; they are not always collaborative in nature.
- Orchestrations themselves may become services available for other services or orchestrations (as mentioned above).
- Orchestration defines a meta-application, of sorts, that has visibility into many encapsulated services as well as application information that may be bound to those services.
- Orchestration is independent of the services they are leveraging. Changes can be made to the orchestration without having to force changes to the services.
- Orchestrations may be decomposable down to base processes, and finally services. The hierarchy further provides architectural control to the architect or the developer in support of the business solution they are automating.
- Orchestration, in context to a SOA, is strategic, leveraging business rules to determine how systems should interact and better leverage the business value from each system through a common abstract business model.

Process orchestration is one of those things that SOA really needs so it can provide the agility value. While most developers are content with just building a bunch of Web services and calling it an architecture, the job is not complete without a well-defined process or orchestration layer for defining, and redefining, business solutions. The trouble is that this approach is architecturally complex, and thus often ignored.

A better way to look at it is to consider that orchestration itself is really about creating another layer of services that interact to form solutions, which is what SOA is all about. ▮

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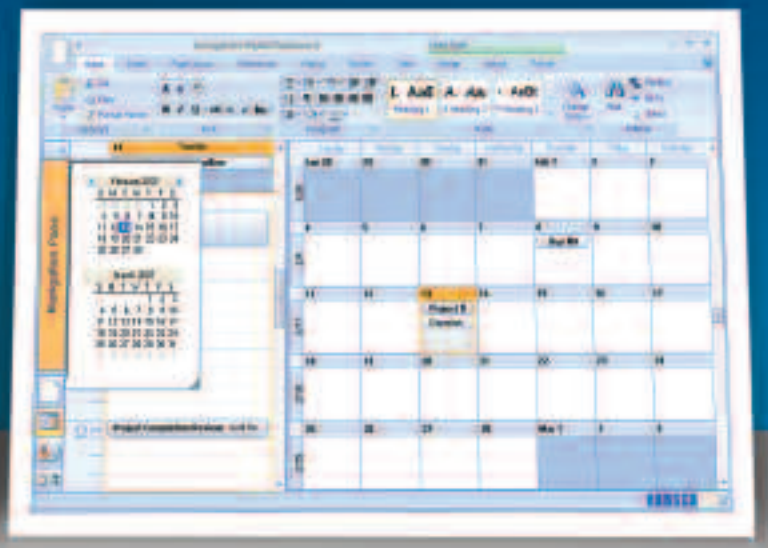

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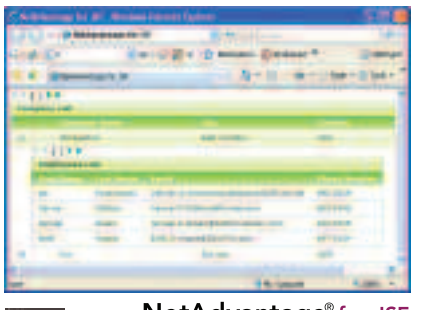

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Talkin' Concurrency

We know, with near metaphysical certainty, that computer chips have essentially reached their limits in terms of the speed with which they can process a single stream of instructions. To be sure, this rate is blazingly fast. The chips that power our machines are so fast that even light can move only a few inches in the time it takes them to perform an operation. We'll see incremental improvements, but as Herb Sutter puts it, "the free lunch is over." When it comes to radical speedups based on Moore's Law, the future belongs to computers that calculate operations concurrently by cramming more cores on to more chips.

While the operating system and complex subcomponents, such as the display subsystem, will take advantage of some of the horsepower in these new cores, Windows Vista doesn't appear to be a significant step toward an operating system refactored toward concurrency. No popular language is inherently parallelizable: You can't reasonably hope that your C# and Visual Basic (much less your C or C++) compilers will suddenly distribute your calculations across multiple processors.

Less certain, but increasingly inarguable, is that the model of threading used in mainstream programming languages—the model of programmer-controlled threads and locks—is fundamentally broken. If you have a library that may acquire and hold a lock due to some user action, you're hamstrung. Such a library can never call client code; it can never invoke a virtual method call; it can never use a passed-in lambda expression; it can never trigger events. None of those things is safe, because any such callback to client code introduces the possibility that the client will start a new thread and perform that action that attempts to acquire the already held lock and thereby, bang, deadlock.

You can expend a great deal of energy working around this limitation and, if you're clever, produce a usable library. But this is just sticking your finger in the dike: A model where callbacks are inherently unsafe is a model that will not work for the mainstream. It might work for that niche of systems-level programmers who accept the similarly unforgiving rules of explicit memory management, but just as we discovered that a memory model based on garbage collection works for the large majority of projects, so too must we discover a better concurrency model.

One idea, often called "message passing" but more explicitly called "shared nothing," is founded on the principle that data stored inside objects should always be thread-local and that access from another thread should always be mediated by a method call that can be made responsible for synchronization. (You can experiment with this model using .NET's ThreadLocalAttribute.)

Although this is conceptually appealing to object-oriented developers, the downside is that it requires an appreciable amount of "everything is an object" overhead on exactly the type of large dataset most amenable to data-parallel performance benefits (for example, multimedia data).

Another idea getting a lot of attention recently is called "software transactional memory" (STM). Database programmers will feel warmly about this model: It's optimistic concurrency for RAM. Basically, the programmer becomes responsible not for controlling threads and locks but for identifying sequences that require atomicity. Just as the database is responsible for checking the validity of a transaction, so too do STM systems have an external component (some combination of library and compiler-generated code) that checks the validity of an atomic sequence and retries invalidated transactions. While such checking introduces some amount of overhead, it's less than that of "shared nothing." As one would intuit, the performance of STM varies with the number of collisions and retries that are triggered. There are a few C# libraries for STM, including one from Microsoft Research (research.microsoft.com/research/downloads/Details/6cfc842d-1c16-4739-afaf-edb35f544384/Details.aspx) and another by Ralf Sudelbücher (weblogs.asp.net/ralfw/archive/tags/Software+Transactional+Memory/default.aspx).

Two other models seem less likely to be embraced by the mainstream: pure-functional programming, in which *all* state is passed through function parameters; and the less ascetic, but probably still too radical, model in which variables are immutable after their initial assignment. Such (along with message-passing) is the model of Erlang, a language where all the cool kids are hanging now that they'll let *anyone* into the Ruby club.

With quad-core systems now available for under US$1,000, we are well into the multicore transition. All of us should start forming opinions on programming models now, because the transformation of mainstream programming coming our way isn't something we can afford to get wrong. ▮

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at www.knowing.net.

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Engineering? There's the Rub

I caught up with Alistair Cockburn at the Agile 2007 Conference in mid-massage. He was on the giving end, working his fingers up and down the forearm of a man who was emitting low guttural sounds as the probing deepened.

"I'm a methodologist," Cockburn said of his view of he world, "but I try not to do massage the same way each time." He said he uses empathy to identify pain points, so he can home in on muscles that need kneading. "When I feel the person get calm, I get calm, and the two of us are living in this greater pool of calm," Cockburn explained. "I can do this for hours."

Industry Watch

Cockburn had transformed the conference's book-signing area into a mini-spa, complete with headrest for the weary attendees he deigned to rub, but eventually the conversation turned to "Agile Software Development: The Cooperative Game, Second Edition," the update to his seminal 2001 work, and his other current efforts, which include the creation of a university course in software engineering.

That last part might seem surprising, coming from a man who is on record as saying the term "software engineering" has no meaning. But Cockburn has revisited the term, and is now finding places where manufacturing and engineering map to software development.

"Engineering—the verb is interesting. What are the actions? They are the trade-offs in an overconstrained situation to come up with a result that's acceptable," Cockburn said. He went on to describe three anchors of software engineering: craft, the "cooperative game," and the application of lean manufacturing techniques.

The craft, the hands-on portion of development, has a number of steps, including project management, deciding what to build, large-scale decisions of architecture, testing, modeling, and the small-scale decisions of programming.

The cooperative game aspect involves situations and strategies to get the team to achieve its goal, which is to deploy software and then get ready for the next deployment of software. "This is where you find out where the bottlenecks are," Cockburn said.

A game, Cockburn has written, has three main characteristics: It can be finite or infinite; it can be competitive or cooperative (tennis versus rock-climbing); and it can be terminated by reaching a goal or time limit or can simply end according to the volition of players (think of jumping rope). Software development can be described in terms of a goal-terminated cooperative game—one that requires invention and communication for success, Cockburn said. The speed of the project is directly tied to the speed with which members of the team can communicate information. Invention describes how members of the team create paths to get to the end point.

The lean manufacturing principles of mathematics and strategy "pick up the issues of critical safety, distributed work and all of agile," Cockburn said. "Software development fits naturally."

Engineering, he concluded, can be seen as an overconstrained area requiring trade-offs to come up with results that are acceptable. Thus, engineering and software development do share some commonality.

Cockburn is sharing his approach to software development with Utah Valley State College, for which he is writing a university course and text.

Turning to his updated book, Cockburn explained that he has updated much of the information in sections marked with gray bars on the sides of the pages, so they can be found easily. In one notable section, Cockburn tries to correct some of the misperceptions that would-be agile developers relay to their managers.

Two examples: Iterations must be short, the developers say. But not too short, Cockburn cautions, lest completing any new features becomes impossible. Developers say agile teams must be in the same place, physically speaking. But Cockburn says distributed teams can do agile as well, and he points out that synchronizing the codebase becomes more important for distributed teams, where communication is not as rapid.

In another section of his revised book, Cockburn describes new topics in agile methodologies, including test-driven development and user interface design.

Cockburn admits that five years ago, he did not consider automated testing a critical project success factor, but now that project teams are shortening their iterations and refactoring more often, he has decided that automated testing and test-driven development need to be thought of as a core practice. As for UI design, he wrote he'd rather think of it as UX design—for the user experience. A balance must be struck, Cockburn said, between giving these UX designers the time they need to research user needs and maintaining incremental development to get a consistent big picture.

Always seeing the big picture, Cockburn went looking for his next massage. ▮

David Rubinstein is editor-in-chief of SD Times.

BUSINESS BRIEFS

When can a decision be claimed as a victory by both sides? When it involves legal interpretations, of course. Thus, **Green Hills Software** and **Express Logic** each can claim it won after a ruling by an arbitration panel that Green Hills did not infringe upon an Express Logic patent when it created its µ-Velosity real-time operating system. According to Express Logic, the arbitrators ruled that Green Hills had in fact copied the ThreadX API for incorporation into µ-Velosity, but that, in and of itself, did not constitute a copyright violation. Green Hills, in a news release of its own, said the ruling was that the API is not protected by copyright law and can be copied at will and without attribution. Express Logic noted that the panel did decide that Express Logic does in fact have a valid copyright for ThreadX. Express Logic president and ThreadX author William E. Lamie expressed shock that the panel could find that Express Logic has a copyright on ThreadX, but that copying its API did not infringe upon that copyright. In a statement, Lamie said, "While we are disappointed that the arbitrators chose to deny the relief we sought, we feel vindicated that the tribunal did recognize the copying that occurred" . . . Web application security tool provider **Cenzic** has filed a patent infringement lawsuit against **SPI Dynamics**, now owned by **Hewlett-Packard**, claiming HP/SPI has violated the company's patent on its Web application vulnerability scanning technology. In June, Cenzic obtained a patent for its fault injection technology, which is a technique for improving the coverage of a test and developing reliable code. Cenzic is going after HP/SPI for using fault injection in the company's line of Web application scanner products . . . **Sun Microsystems** has changed its stock ticker from SUNW, its nod to its first product, the Stanford University Network Workstation, to JAVA, which company CEO Jonathan Schwartz called one of the most pervasive brands on the Internet.

EARNINGS: **Novell** reported third-quarter revenue of US$243 million, an increase of $7 million from 2006, but reported an operating loss of $10 million, down from $40 million from the same quarter in the prior year . . . **BEA Systems** reported second-quarter revenue of US$364.4 million, an increase of 7 percent from the previous year's second quarter. The company is not filing full financials due to a previously announced internal review of its historical stock option grants. The outcome could negatively impact this and prior statements, the company reported. ▮

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FLAGG MANAGEMENT
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Intel Developer Forum — Sept. 18–20
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INTEL
www.intel.com/idf/us/fall2007

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TechExcel Users Conference — Oct. 1–5
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TECHEXCEL
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Software Business 2007 — Oct. 2–3
Santa Clara
WEBCOM COMMUNICATIONS
www.softwarebusinessonline.com/sb_conf07_index.htm

Software Test & Performance Conference — Oct. 2–4
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Web 2.0 Summit — Oct. 17–19
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For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

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